

s263US104.ST25
SEQUENCE LISTING

<110> COMMISSARIAT A L'ENERGIE ATOMIQUE
DERAND, Renaud
GARCIA, Elisabeth
PROST, Anne-Lise
REVILLOUD, Jean
VIVAUDOU, Michel

<120> ION CHANNEL HYBRID PROTEINS AS ELECTRICAL SENSORS AND USE THEREOF

<130> F263US104

<160> 25

<170> PatentIn version 3.1

<210> 1

<211> 1927

<212> PRT

<213> Homo sapiens

<400> 1

Met Ala Leu Arg Gly Phe Cys Ser Ala Asp Gly Ser Asp Pro Leu Trp
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Phe Gln Asn Thr Val Leu Val Trp Val Pro Cys Phe Tyr Leu Trp Ala
35 40 45

Cys Phe Pro Phe Tyr Phe Leu Tyr Leu Ser Arg His Asp Arg Gly Tyr
50 55 60

Ile Gln Met Thr Pro Leu Asn Lys Thr Lys Thr Ala Leu Gly Phe Leu
65 70 75 80

Leu Trp Ile Val Cys Trp Ala Asp Leu Phe Tyr Ser Phe Trp Glu Arg
85 90 95

Ser Arg Gly Ile Phe Leu Ala Pro Val Phe Leu Val Ser Pro Thr Leu
100 105 110

Leu Gly Ile Thr Thr Leu Leu Ala Thr Phe Leu Ile Gln Leu Glu Arg
115 120 125

Arg Lys Gly Val Gln Ser Ser Gly Ile Met Leu Thr Phe Trp Leu Val
130 135 140

Ala Leu Val Cys Ala Leu Ala Ile Leu Arg Ser Lys Ile Met Thr Ala
145 150 155 160

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Leu Lys Glu Asp Ala Gln Val Asp Leu Phe Arg Asp Ile Thr Phe Tyr
 165 170 175
 Val Tyr Phe Ser Leu Leu Leu Ile Gln Leu Val Leu Ser Cys Phe Ser
 180 185 190
 Asp Arg Ser Pro Leu Phe Ser Glu Thr Ile His Asp Pro Asn Pro Cys
 195 200 205
 Pro Glu Ser Ser Ala Ser Phe Leu Ser Arg Ile Thr Phe Trp Trp Ile
 210 215 220
 Thr Gly Leu Ile Val Arg Gly Tyr Arg Gln Pro Leu Glu Gly Ser Asp
 225 230 235 240
 Leu Trp Ser Leu Asn Lys Glu Asp Thr Ser Glu Gln Val Val Pro Val
 245 250 255
 Leu Val Lys Asn Trp Lys Lys Glu Cys Ala Lys Thr Arg Lys Gln Pro
 260 265 270
 Val Lys Val Val Tyr Ser Ser Lys Asp Pro Ala Gln Pro Lys Glu Ser
 275 280 285
 Ser Lys Val Asp Ala Asn Glu Glu Val Glu Ala Leu Ile Val Lys Ser
 290 295 300
 Pro Gln Lys Glu Trp Asn Pro Ser Leu Phe Lys Val Leu Tyr Lys Thr
 305 310 315 320
 Phe Gly Pro Tyr Phe Leu Met Ser Phe Phe Phe Lys Ala Ile His Asp
 325 330 335
 Leu Met Met Phe Ser Gly Pro Gln Ile Leu Lys Leu Leu Ile Lys Phe
 340 345 350
 Val Asn Asp Thr Lys Ala Pro Asp Trp Gln Gly Tyr Phe Tyr Thr Val
 355 360 365
 Leu Leu Phe Val Thr Ala Cys Leu Gln Thr Leu Val Leu His Gln Tyr
 370 375 380
 Phe His Ile Cys Phe Val Ser Gly Met Arg Ile Lys Thr Ala Val Ile
 385 390 395 400
 Gly Ala Val Tyr Arg Lys Ala Leu Val Ile Thr Asn Ser Ala Arg Lys
 405 410 415

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Ser Ser Thr Val Gly Glu Ile Val Asn Leu Met Ser Val Asp Ala Gln
420 425 430

Arg Phe Met Asp Leu Ala Thr Tyr Ile Asn Met Ile Trp Ser Ala Pro
435 440 445

Leu Gln Val Ile Leu Ala Leu Tyr Leu Leu Trp Leu Asn Leu Gly Pro
450 455 460

Ser Val Leu Ala Gly Val Ala Val Met Val Leu Met Val Pro Val Asn
465 470 475 480

Ala Val Met Ala Met Lys Thr Lys Thr Tyr Gln Val Ala His Met Lys
485 490 495

Ser Lys Asp Asn Arg Ile Lys Leu Met Asn Glu Ile Leu Asn Gly Ile
500 505 510

Lys Val Leu Lys Leu Tyr Ala Trp Glu Leu Ala Phe Lys Asp Lys Val
515 520 525

Leu Ala Ile Arg Gln Glu Glu Leu Lys Val Leu Lys Lys Ser Ala Tyr
530 535 540

Leu Ser Ala Val Gly Thr Phe Thr Trp Val Cys Thr Pro Phe Leu Val
545 550 555 560

Ala Leu Cys Thr Phe Ala Val Tyr Val Thr Ile Asp Glu Asn Asn Ile
565 570 575

Leu Asp Ala Gln Thr Ala Phe Val Ser Leu Ala Leu Phe Asn Ile Leu
580 585 590

Arg Phe Pro Leu Asn Ile Leu Pro Met Val Ile Ser Ser Ile Val Gln
595 600 605

Ala Ser Val Ser Leu Lys Arg Leu Arg Ile Phe Leu Ser His Glu Glu
610 615 620

Leu Glu Pro Asp Ser Ile Glu Arg Arg Pro Val Lys Asp Gly Gly Gly
625 630 635 640

Thr Asn Ser Ile Thr Val Arg Asn Ala Thr Phe Thr Trp Ala Arg Ser
645 650 655

Asp Pro Pro Thr Leu Asn Gly Ile Thr Phe Ser Ile Pro Glu Gly Ala
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660	665	670
Leu Val Ala Val Val Gly Gln Val Gly Cys Gly Lys Ser Ser Leu Leu	675	680
Ser Ala Leu Leu Ala Glu Met Asp Lys Val Glu Gly His Val Ala Ile	690	700
Lys Gly Ser Val Ala Tyr Val Pro Gln Gln Ala Trp Ile Gln Asn Asp	705	710
Ser Leu Arg Glu Asn Ile Leu Phe Gly Cys Gln Leu Glu Glu Pro Tyr	725	730
Tyr Arg Ser Val Ile Gln Ala Cys Ala Leu Leu Pro Asp Leu Glu Ile	740	745
Leu Pro Ser Gly Asp Arg Thr Glu Ile Gly Glu Lys Gly Val Asn Leu	755	760
Ser Gly Gly Gln Lys Gln Arg Val Ser Leu Ala Arg Ala Val Tyr Ser	770	775
Asn Ala Asp Ile Tyr Leu Phe Asp Asp Pro Leu Ser Ala Val Asp Ala	785	790
His Val Gly Lys His Ile Phe Glu Asn Val Ile Gly Pro Lys Gly Met	805	810
Leu Lys Asn Lys Thr Arg Ile Leu Val Thr His Ser Met Ser Tyr Leu	820	825
Pro Gln Val Asp Val Ile Ile Val Met Ser Gly Gly Lys Ile Ser Glu	835	840
Met Gly Ser Tyr Gln Glu Leu Leu Ala Arg Asp Gly Ala Phe Ala Glu	850	855
Phe Leu Arg Thr Tyr Ala Ser Thr Glu Gln Glu Gln Asp Ala Glu Glu	865	870
Asn Gly Val Thr Gly Val Ser Gly Pro Gly Lys Glu Ala Lys Gln Met	885	890
Glu Asn Gly Met Leu Val Thr Asp Ser Ala Gly Lys Gln Leu Gln Arg	900	905

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Gln Leu Ser Ser Ser Ser Ser Tyr Ser Gly Asp Ile Ser Arg His His
915 920 925

Asn Ser Thr Ala Glu Leu Gln Lys Ala Glu Ala Lys Lys Glu Glu Thr
930 935 940

Trp Lys Leu Met Glu Ala Asp Lys Ala Gln Thr Gly Gln Val Lys Leu
945 950 955 960

Ser Val Tyr Trp Asp Tyr Met Lys Ala Ile Gly Leu Phe Ile Ser Phe
965 970 975

Leu Ser Ile Phe Leu Phe Met Cys Asn His Val Ser Ala Leu Ala Ser
980 985 990

Asn Tyr Trp Leu Ser Leu Trp Thr Asp Asp Pro Ile Val Asn Gly Thr
995 1000 1005

Gln Glu His Thr Lys Val Arg Leu Ser Val Tyr Gly Ala Leu Gly
1010 1015 1020

Ile Ser Gln Gly Ile Ala Val Phe Gly Tyr Ser Met Ala Val Ser
1025 1030 1035

Ile Gly Gly Ile Leu Ala Ser Arg Cys Leu His Val Asp Leu Leu
1040 1045 1050

His Ser Ile Leu Arg Ser Pro Met Ser Phe Phe Glu Arg Thr Pro
1055 1060 1065

Ser Gly Asn Leu Val Asn Arg Phe Ser Lys Glu Leu Asp Thr Val
1070 1075 1080

Asp Ser Met Ile Pro Glu Val Ile Lys Met Phe Met Gly Ser Leu
1085 1090 1095

Phe Asn Val Ile Gly Ala Cys Ile Val Ile Leu Leu Ala Thr Pro
1100 1105 1110

Ile Ala Ala Ile Ile Ile Pro Pro Leu Gly Leu Ile Tyr Phe Phe
1115 1120 1125

Val Gln Arg Phe Tyr Val Ala Ser Ser Arg Gln Leu Lys Arg Leu
1130 1135 1140

Glu Ser Val Ser Arg Ser Pro Val Tyr Ser His Phe Asn Glu Thr
1145 1150 1155

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Leu 1160 Leu Gly Val Ser Val Ile 1165 Arg Ala Phe Glu Glu 1170 Gln Glu Arg
Phe 1175 Ile His Gln Ser Asp Leu 1180 Lys Val Asp Glu Asn 1185 Gln Lys Ala
Tyr 1190 Tyr Pro Ser Ile Val Ala 1195 Asn Arg Trp Leu Ala 1200 Val Arg Leu
Glu 1205 Cys Val Gly Asn Cys Ile 1210 Val Leu Phe Ala Ala 1215 Leu Phe Ala
Val 1220 Ile Ser Arg His Ser Leu 1225 Ser Ala Gly Leu Val 1230 Gly Leu Ser
Val 1235 Ser Tyr Ser Leu Gln Val 1240 Thr Thr Tyr Leu Asn 1245 Trp Leu Val
Arg 1250 Met Ser Ser Glu Met Glu 1255 Thr Asn Ile Val Ala 1260 Val Glu Arg
Leu 1265 Lys Glu Tyr Ser Glu Thr 1270 Glu Lys Glu Ala Pro 1275 Trp Gln Ile
Gln 1280 Glu Thr Ala Pro Pro Ser 1285 Ser Trp Pro Gln Val 1290 Gly Arg Val
Glu 1295 Phe Arg Asn Tyr Cys Leu 1300 Arg Tyr Arg Glu Asp 1305 Leu Asp Phe
Val 1310 Leu Arg His Ile Asn Val 1315 Thr Ile Asn Gly Gly 1320 Glu Lys Val
Gly 1325 Ile Val Gly Arg Thr Gly 1330 Ala Gly Lys Ser Ser 1335 Leu Thr Leu
Gly 1340 Leu Phe Arg Ile Asn Glu 1345 Ser Ala Glu Gly Glu 1350 Ile Ile Ile
Asp 1355 Gly Ile Asn Ile Ala Lys 1360 Ile Gly Leu His Asp 1365 Leu Arg Phe
Lys 1370 Ile Thr Ile Ile Pro Gln 1375 Asp Pro Val Leu Phe 1380 Ser Gly Ser
Leu 1385 Arg Met Asn Leu Asp Pro 1390 Phe Ser Gln Tyr Ser 1395 Asp Glu Glu

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Val Trp Thr Ser Leu Glu Leu Ala His Leu Lys Asp Phe Val Ser
1400 1405 1410

Ala Leu Pro Asp Lys Leu Asp His Glu Cys Ala Glu Gly Gly Glu
1415 1420 1425

Asn Leu Ser Val Gly Gln Arg Gln Leu Val Cys Leu Ala Arg Ala
1430 1435 1440

Leu Leu Arg Lys Thr Lys Ile Leu Val Leu Asp Glu Ala Thr Ala
1445 1450 1455

Ala Val Asp Leu Glu Thr Asp Asp Leu Ile Gln Ser Thr Ile Arg
1460 1465 1470

Thr Gln Phe Glu Asp Cys Thr Val Leu Thr Ile Ala His Arg Leu
1475 1480 1485

Asn Thr Ile Met Asp Tyr Thr Arg Val Ile Val Leu Asp Lys Gly
1490 1495 1500

Glu Ile Gln Glu Tyr Gly Ala Pro Ser Asp Leu Leu Gln Gln Arg
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Gly Leu Phe Tyr Ser Met Ala Lys Asp Ala Gly Leu Val Gly Gly
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Gly Gly Gly Gly Met Leu Ser Arg Lys Gly Ile Ile Pro Glu Glu
1535 1540 1545

Tyr Val Leu Thr Arg Leu Ala Glu Asp Pro Ala Glu Pro Arg Tyr
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Arg Thr Arg Glu Arg Arg Ala Arg Phe Val Ser Lys Lys Gly Asn
1565 1570 1575

Cys Asn Val Ala His Lys Asn Ile Arg Glu Gln Gly Arg Phe Leu
1580 1585 1590

Gln Asp Val Phe Thr Thr Leu Val Asp Leu Lys Trp Pro His Thr
1595 1600 1605

Leu Leu Ile Phe Thr Met Ser Phe Leu Cys Ser Trp Leu Leu Phe
1610 1615 1620

Ala Met Val Trp Trp Leu Ile Ala Phe Ala His Gly Asp Leu Ala

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1625					1630					1635				
Pro	Gly	Glu	Gly	Thr	Asn	Val	Pro	Cys	Val	Thr	Ser	Ile	His	Ser
1640						1645					1650			
Phe	Ser	Ser	Ala	Phe	Leu	Phe	Ser	Ile	Glu	Val	Gln	Val	Thr	Ile
1655					1660						1665			
Gly	Phe	Gly	Gly	Arg	Met	Val	Thr	Glu	Glu	Cys	Pro	Leu	Ala	Ile
1670					1675						1680			
Leu	Ile	Leu	Ile	Val	Gln	Asn	Ile	Val	Gly	Leu	Met	Ile	Asn	Ala
1685					1690						1695			
Ile	Met	Leu	Gly	Cys	Ile	Phe	Met	Lys	Thr	Ala	Gln	Ala	His	Arg
1700					1705						1710			
Arg	Ala	Glu	Thr	Leu	Ile	Phe	Ser	Lys	His	Ala	Val	Ile	Thr	Leu
1715					1720						1725			
Arg	His	Gly	Arg	Leu	Cys	Phe	Met	Leu	Arg	Val	Gly	Asp	Leu	Arg
1730					1735						1740			
Lys	Ser	Met	Ile	Ile	Ser	Ala	Thr	Ile	His	Met	Gln	Val	Val	Arg
1745					1750						1755			
Lys	Thr	Thr	Ser	Pro	Glu	Gly	Glu	Val	Val	Pro	Leu	His	Gln	Val
1760					1765						1770			
Asp	Ile	Pro	Met	Glu	Asn	Gly	Val	Gly	Gly	Asn	Gly	Ile	Phe	Leu
1775					1780						1785			
Val	Ala	Pro	Leu	Ile	Ile	Tyr	His	Val	Ile	Asp	Ser	Asn	Ser	Pro
1790					1795						1800			
Leu	Tyr	Asp	Leu	Ala	Pro	Ser	Asp	Leu	His	His	His	Gln	Asp	Leu
1805					1810						1815			
Glu	Ile	Ile	Val	Ile	Leu	Glu	Gly	Val	Val	Glu	Thr	Thr	Gly	Ile
1820					1825						1830			
Thr	Thr	Gln	Ala	Arg	Thr	Ser	Tyr	Leu	Ala	Asp	Glu	Ile	Leu	Trp
1835					1840						1845			
Gly	Gln	Arg	Phe	Val	Pro	Ile	Val	Ala	Glu	Glu	Asp	Gly	Arg	Tyr
1850					1855						1860			

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Ser Val Asp Tyr Ser Lys Phe Gly Asn Thr Ile Lys Val Pro Thr
 1865 1870 1875

Pro Leu Cys Thr Ala Arg Gln Leu Asp Glu Asp Arg Ser Leu Leu
 1880 1885 1890

Asp Ala Leu Thr Leu Ala Ser Ser Arg Gly Pro Leu Arg Lys Arg
 1895 1900 1905

Ser Val Ala Val Ala Lys Ala Lys Pro Lys Phe Ser Ile Ser Pro
 1910 1915 1920

Asp Ser Leu Ser
 1925

<210> 2
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 <212> PRT
 <213> *Saccharomyces cerevisiae*

<400> 2

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Glu Gly Phe Gly Pro Ile Ser Phe Tyr Gly Asp Phe Thr Gln Cys Phe
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Ile Asp Gly Val Ile Leu Asn Leu Ser Ala Ile Phe Met Ile Thr Phe
 35 40 45

Gly Ile Arg Asp Leu Val Asn Leu Cys Lys Lys Lys His Ser Gly Ile
 50 55 60

Lys Tyr Arg Arg Asn Trp Ile Ile Val Ser Arg Met Ala Leu Val Leu
 65 70 75 80

Leu Glu Ile Ala Phe Val Ser Leu Ala Ser Leu Asn Ile Ser Lys Glu
 85 90 95

Glu Ala Glu Asn Phe Thr Ile Val Ser Gln Tyr Ala Ser Thr Met Leu
 100 105 110

Ser Leu Phe Val Ala Leu Ala Leu His Trp Ile Glu Tyr Asp Arg Ser
 115 120 125

Val Val Ala Asn Thr Val Leu Leu Phe Tyr Trp Leu Phe Glu Thr Phe
 130 135 140

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Gly Asn Phe Ala Lys Leu Ile Asn Ile Leu Ile Arg His Thr Tyr Glu
145 150 155 160

Gly Ile Trp Tyr Ser Gly Gln Thr Gly Phe Ile Leu Thr Leu Phe Gln
165 170 175

Val Ile Thr Cys Ala Ser Ile Leu Leu Leu Glu Ala Leu Pro Lys Lys
180 185 190

Pro Leu Met Pro His Gln His Ile His Gln Thr Leu Thr Arg Arg Lys
195 200 205

Pro Asn Pro Tyr Asp Ser Ala Asn Ile Phe Ser Arg Ile Thr Phe Ser
210 215 220

Trp Met Ser Gly Leu Met Lys Thr Gly Tyr Glu Lys Tyr Leu Val Glu
225 230 235 240

Ala Asp Leu Tyr Lys Leu Pro Arg Asn Phe Ser Ser Glu Glu Leu Ser
245 250 255

Gln Lys Leu Glu Lys Asn Trp Glu Asn Glu Leu Lys Gln Lys Ser Asn
260 265 270

Pro Ser Leu Ser Trp Ala Ile Cys Arg Thr Phe Gly Ser Lys Met Leu
275 280 285

Leu Ala Ala Phe Phe Lys Ala Ile His Asp Val Leu Ala Phe Thr Gln
290 295 300

Pro Gln Leu Leu Arg Ile Leu Ile Lys Phe Val Thr Asp Tyr Asn Ser
305 310 315 320

Glu Arg Gln Asp Asp His Ser Ser Leu Gln Gly Phe Glu Asn Asn His
325 330 335

Pro Gln Lys Leu Pro Ile Val Arg Gly Phe Leu Ile Ala Phe Ala Met
340 345 350

Phe Leu Val Gly Phe Thr Gln Thr Ser Val Leu His Gln Tyr Phe Leu
355 360 365

Asn Val Phe Asn Thr Gly Met Tyr Ile Lys Ser Ala Leu Thr Ala Leu
370 375 380

Ile Tyr Gln Lys Ser Leu Val Leu Ser Asn Glu Ala Ser Gly Leu Ser
385 390 395 400

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Ser Thr Gly Asp Ile Val Asn Leu Met Ser Val Asp Val Gln Lys Leu
405 410 415

Gln Asp Leu Thr Gln Trp Leu Asn Leu Ile Trp Ser Gly Pro Phe Gln
420 425 430

Ile Ile Ile Cys Leu Tyr Ser Leu Tyr Lys Leu Leu Gly Asn Ser Met
435 440 445

Trp Val Gly Val Ile Ile Leu Val Ile Met Met Pro Leu Asn Ser Phe
450 455 460

Leu Met Arg Ile Gln Lys Lys Leu Gln Lys Ser Gln Met Lys Tyr Lys
465 470 475 480

Asp Glu Arg Thr Arg Val Ile Ser Glu Ile Leu Asn Asn Ile Lys Ser
485 490 495

Leu Lys Leu Tyr Ala Trp Glu Lys Pro Tyr Arg Glu Lys Leu Glu Glu
500 505 510

Val Arg Asn Asn Lys Glu Leu Lys Asn Leu Thr Lys Leu Gly Cys Tyr
515 520 525

Met Ala Val Thr Ser Phe Gln Phe Asn Ile Val Pro Phe Leu Val Ser
530 535 540

Cys Cys Thr Phe Ala Val Phe Val Tyr Thr Glu Asp Arg Ala Leu Thr
545 550 555 560

Thr Asp Leu Val Phe Pro Ala Leu Thr Leu Phe Asn Leu Leu Ser Phe
565 570 575

Pro Leu Met Ile Ile Pro Met Val Leu Asn Ser Phe Ile Glu Ala Ser
580 585 590

Val Ser Ile Gly Arg Leu Phe Thr Phe Phe Thr Asn Glu Glu Leu Gln
595 600 605

Pro Asp Ser Val Gln Arg Leu Pro Lys Val Lys Asn Ile Gly Asp Val
610 615 620

Ala Ile Asn Ile Gly Asp Asp Ala Thr Phe Leu Trp Gln Arg Lys Pro
625 630 635 640

Glu Tyr Lys Val Ala Leu Lys Asn Ile Asn Phe Gln Ala Lys Lys Glu
645 650 655

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Asn Leu Thr Cys Ile Val Gly Lys Val Gly Ser Gly Lys Thr Ala Leu
 660 665 670
 Leu Ser Cys Met Leu Gly Asp Arg Phe Arg Val Lys Gly Phe Ala Thr
 675 680 685
 Val His Gly Ser Val Ala Tyr Val Ser Gln Val Pro Trp Ile Met Asn
 690 695 700
 Gly Thr Val Lys Glu Asn Ile Leu Phe Gly His Arg Tyr Asp Ala Glu
 705 710 715 720
 Phe Tyr Glu Lys Thr Ile Lys Ala Cys Ala Leu Thr Ile Asp Leu Ala
 725 730 735
 Ile Leu Met Asp Gly Asp Lys Thr Leu Val Gly Glu Lys Gly Ile Ser
 740 745 750
 Leu Ser Gly Gly Gln Lys Ala Arg Leu Ser Leu Ala Arg Ala Val Tyr
 755 760 765
 Ala Arg Ala Asp Thr Tyr Leu Leu Asp Asp Pro Leu Ala Ala Val Asp
 770 775 780
 Glu His Val Ala Arg His Leu Ile Glu His Val Leu Gly Pro Asn Gly
 785 790 795 800
 Leu Leu His Thr Lys Thr Lys Val Leu Ala Thr Asn Lys Val Ser Ala
 805 810 815
 Leu Ser Ile Ala Asp Ser Ile Ala Leu Leu Asp Asn Gly Glu Ile Thr
 820 825 830
 Gln Gln Gly Thr Tyr Asp Glu Ile Thr Lys Asp Ala Asp Ser Pro Leu
 835 840 845
 Trp Lys Leu Leu Asn Asn Tyr Gly Lys Lys Asn Asn Gly Lys Ser Asn
 850 855 860
 Glu Phe Gly Asp Ser Ser Glu Ser Ser Val Arg Glu Ser Ser Ile Pro
 865 870 875 880
 Val Glu Gly Glu Leu Glu Gln Leu Gln Lys Leu Asn Asp Leu Asp Phe
 885 890 895
 Gly Asn Ser Asp Ala Ile Ser Leu Arg Arg Ala Ser Asp Ala Thr Leu

900

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905

910

Gly Ser Ile Asp Phe Gly Asp Asp Glu Asn Ile Ala Lys Arg Glu His
 915 920 925
 Arg Glu Gln Gly Lys Val Lys Trp Asn Ile Tyr Leu Glu Tyr Ala Lys
 930 935 940
 Ala Cys Asn Pro Lys Ser Val Cys Val Phe Ile Leu Phe Ile Val Ile
 945 950 955 960
 Ser Met Phe Leu Ser Val Met Gly Asn Val Trp Leu Lys His Trp Ser
 965 970 975
 Glu Val Asn Ser Arg Tyr Gly Ser Asn Pro Asn Ala Ala Arg Tyr Leu
 980 985 990
 Ala Ile Tyr Phe Ala Leu Gly Ile Gly Ser Ala Leu Ala Thr Leu Ile
 995 1000 1005
 Gln Thr Ile Val Leu Trp Val Phe Cys Thr Ile His Ala Ser Lys
 1010 1015 1020
 Tyr Leu His Asn Leu Met Thr Asn Ser Val Leu Arg Ala Pro Met
 1025 1030 1035
 Thr Phe Phe Glu Thr Thr Pro Ile Gly Arg Ile Leu Asn Arg Phe
 1040 1045 1050
 Ser Asn Asp Ile Tyr Lys Val Asp Ala Leu Leu Gly Arg Thr Phe
 1055 1060 1065
 Ser Gln Phe Phe Val Asn Ala Val Lys Val Thr Phe Thr Ile Thr
 1070 1075 1080
 Val Ile Cys Ala Thr Thr Trp Gln Phe Ile Phe Ile Ile Ile Pro
 1085 1090 1095
 Leu Ser Val Phe Tyr Ile Tyr Tyr Gln Gln Tyr Tyr Leu Arg Thr
 1100 1105 1110
 Ser Arg Glu Leu Arg Arg Leu Asp Ser Ile Thr Arg Ser Pro Ile
 1115 1120 1125
 Tyr Ser His Phe Gln Glu Thr Leu Gly Gly Leu Ala Thr Val Arg
 1130 1135 1140

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Gly Tyr Ser Gln Gln Lys Arg Phe Ser His Ile Asn Gln Cys Arg
1145 1150 1155

Ile Asp Asn Asn Met Ser Ala Phe Tyr Pro Ser Ile Asn Ala Asn
1160 1165 1170

Arg Trp Leu Ala Tyr Arg Leu Glu Leu Ile Gly Ser Ile Ile Ile
1175 1180 1185

Leu Gly Ala Ala Thr Leu Ser Val Phe Arg Leu Lys Gln Gly Thr
1190 1195 1200

Leu Thr Ala Gly Met Val Gly Leu Ser Leu Ser Tyr Ala Leu Gln
1205 1210 1215

Ile Thr Gln Thr Leu Asn Trp Ile Val Arg Met Thr Val Glu Val
1220 1225 1230

Glu Thr Asn Ile Val Ser Val Glu Arg Ile Lys Glu Tyr Ala Asp
1235 1240 1245

Leu Lys Ser Glu Ala Pro Leu Ile Val Glu Gly His Arg Pro Pro
1250 1255 1260

Lys Glu Trp Pro Ser Gln Gly Asp Ile Lys Phe Asn Asn Tyr Ser
1265 1270 1275

Thr Arg Tyr Arg Pro Glu Leu Asp Leu Val Leu Lys His Ile Asn
1280 1285 1290

Ile His Ile Lys Pro Asn Glu Lys Val Gly Ile Val Gly Arg Thr
1295 1300 1305

Gly Ala Gly Lys Ser Ser Leu Thr Leu Ala Leu Phe Arg Met Ile
1310 1315 1320

Glu Ala Ser Glu Gly Asn Ile Val Ile Asp Asn Ile Ala Ile Asn
1325 1330 1335

Glu Ile Gly Leu Tyr Asp Leu Arg His Lys Leu Ser Ile Ile Pro
1340 1345 1350

Gln Asp Ser Gln Val Phe Glu Gly Thr Val Arg Glu Asn Ile Asp
1355 1360 1365

Pro Ile Asn Gln Tyr Thr Asp Glu Ala Ile Trp Arg Ala Leu Glu
1370 1375 1380

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Leu Ser His Leu Lys Glu His Val Leu Ser Met Ser Asn Asp Gly
 1385 1390 1395
 Leu Asp Ala Gln Leu Thr Glu Gly Gly Gly Asn Leu Ser Val Gly
 1400 1405 1410
 Gln Arg Gln Leu Leu Cys Leu Ala Arg Ala Met Leu Val Pro Ser
 1415 1420 1425
 Lys Ile Leu Val Leu Asp Glu Ala Thr Ala Ala Val Asp Val Glu
 1430 1435 1440
 Thr Asp Lys Val Val Gln Glu Thr Ile Arg Thr Ala Phe Lys Asp
 1445 1450 1455
 Arg Thr Ile Leu Thr Ile Ala His Arg Leu Asn Thr Ile Met Asp
 1460 1465 1470
 Ser Asp Arg Ile Ile Val Leu Asp Asn Gly Lys Val Ala Glu Phe
 1475 1480 1485
 Asp Ser Pro Gly Gln Leu Leu Ser Asp Asn Lys Ser Leu Phe Tyr
 1490 1495 1500
 Ser Leu Cys Met Glu Ala Gly Leu Val Asn Glu Asn Gly Gly Gly
 1505 1510 1515
 Gly Gly Gly Met Leu Ser Arg Lys Gly Ile Ile Pro Glu Glu Tyr
 1520 1525 1530
 Val Leu Thr Arg Leu Ala Glu Asp Pro Ala Glu Pro Arg Tyr Arg
 1535 1540 1545
 Thr Arg Glu Arg Arg Ala Arg Phe Val Ser Lys Lys Gly Asn Cys
 1550 1555 1560
 Asn Val Ala His Lys Asn Ile Arg Glu Gln Gly Arg Phe Leu Gln
 1565 1570 1575
 Asp Val Phe Thr Thr Leu Val Asp Leu Lys Trp Pro His Thr Leu
 1580 1585 1590
 Leu Ile Phe Thr Met Ser Phe Leu Cys Ser Trp Leu Leu Phe Ala
 1595 1600 1605
 Met Val Trp Trp Leu Ile Ala Phe Ala His Gly Asp Leu Ala Pro
 1610 1615 1620

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Gly	Glu	Gly	Thr	Asn	Val	Pro	Cys	Val	Thr	Ser	Ile	His	Ser	Phe
	1625					1630					1635			
Ser	Ser	Ala	Phe	Leu	Phe	Ser	Ile	Glu	Val	Gln	Val	Thr	Ile	Gly
	1640					1645					1650			
Phe	Gly	Gly	Arg	Met	Val	Thr	Glu	Glu	Cys	Pro	Leu	Ala	Ile	Leu
	1655					1660					1665			
Ile	Leu	Ile	Val	Gln	Asn	Ile	Val	Gly	Leu	Met	Ile	Asn	Ala	Ile
	1670					1675					1680			
Met	Leu	Gly	Cys	Ile	Phe	Met	Lys	Thr	Ala	Gln	Ala	His	Arg	Arg
	1685					1690					1695			
Ala	Glu	Thr	Leu	Ile	Phe	Ser	Lys	His	Ala	Val	Ile	Thr	Leu	Arg
	1700					1705					1710			
His	Gly	Arg	Leu	Cys	Phe	Met	Leu	Arg	Val	Gly	Asp	Leu	Arg	Lys
	1715					1720					1725			
Ser	Met	Ile	Ile	Ser	Ala	Thr	Ile	His	Met	Gln	Val	Val	Arg	Lys
	1730					1735					1740			
Thr	Thr	Ser	Pro	Glu	Gly	Glu	Val	Val	Pro	Leu	His	Gln	Val	Asp
	1745					1750					1755			
Ile	Pro	Met	Glu	Asn	Gly	Val	Gly	Gly	Asn	Gly	Ile	Phe	Leu	Val
	1760					1765					1770			
Ala	Pro	Leu	Ile	Ile	Tyr	His	Val	Ile	Asp	Ser	Asn	Ser	Pro	Leu
	1775					1780					1785			
Tyr	Asp	Leu	Ala	Pro	Ser	Asp	Leu	His	His	His	Gln	Asp	Leu	Glu
	1790					1795					1800			
Ile	Ile	Val	Ile	Leu	Glu	Gly	Val	Val	Glu	Thr	Thr	Gly	Ile	Thr
	1805					1810					1815			
Thr	Gln	Ala	Arg	Thr	Ser	Tyr	Leu	Ala	Asp	Glu	Ile	Leu	Trp	Gly
	1820					1825					1830			
Gln	Arg	Phe	Val	Pro	Ile	Val	Ala	Glu	Glu	Asp	Gly	Arg	Tyr	Ser
	1835					1840					1845			
Val	Asp	Tyr	Ser	Lys	Phe	Gly	Asn	Thr	Ile	Lys	Val	Pro	Thr	Pro

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1860

1850

1855

Leu Cys Thr Ala Arg Gln Leu Asp Glu Asp Arg Ser Leu Leu Asp
1865 1870 1875

Ala Leu Thr Leu Ala Ser Ser Arg Gly Pro Leu Arg Lys Arg Ser
1880 1885 1890

Val Ala Val Ala Lys Ala Lys Pro Lys Phe Ser Ile Ser Pro Asp
1895 1900 1905

Ser Leu Ser
1910

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<212> PRT
<213> Rattus rattus

<400> 3

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1 5 10 15

His Gly Val Leu Gln Asn Pro Cys Phe Val Asp Ala Leu Asn Leu Val
20 25 30

Pro His Val Phe Leu Leu Phe Ile Thr Phe Pro Ile Leu Phe Ile Gly
35 40 45

Trp Gly Ser Gln Ser Ser Lys Val Gln Ile His His Asn Thr Trp Leu
50 55 60

His Phe Pro Gly His Asn Leu Arg Trp Ile Leu Thr Phe Ala Leu Leu
65 70 75 80

Phe Val His Val Cys Glu Ile Ala Glu Gly Ile Val Ser Asp Ser Gln
85 90 95

Arg Ala Ser Arg His Leu His Leu Phe Met Pro Ala Val Met Gly Phe
100 105 110

Val Ala Thr Thr Thr Ser Ile Val Tyr Tyr His Asn Ile Glu Thr Ser
115 120 125

Asn Phe Pro Lys Leu Leu Leu Ala Leu Phe Leu Tyr Trp Val Met Ala
130 135 140

Phe Ile Thr Lys Thr Ile Lys Leu Val Lys Tyr Trp Gln Leu Gly Trp
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145		150		155		160
Gly	Met	Ser	Asp	Leu	Arg	Phe
				165		
					Cys	Ile
					170	
						Gly
						Val
						Met
						Val
						Ile
						Leu
Asn	Gly	Leu	Leu	Met	Ala	Val
						180
						Glu
						185
						Asn
						Val
						Ile
						Arg
						Val
						190
						Arg
						Arg
Tyr	Val	Phe	Phe	Met	Asn	Pro
		195				
						Gln
						200
						Lys
						Val
						Lys
						Pro
						Pro
						205
						Glu
						Asp
						Leu
Gln	Asp	Leu	Gly	Val	Arg	Phe
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						Gln
						Pro
						Phe
						Val
						220
						Asn
						Leu
						Leu
						Ser
Lys	Ala	Thr	Tyr	Trp	Trp	Met
						230
						Asn
						Thr
						Leu
						Ile
						235
						Ile
						Ser
						Ala
						His
						Arg
						240
Lys	Pro	Ile	Asp	Leu	Lys	Ala
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						Ile
						Gly
						Lys
						250
						Leu
						Pro
						Ile
						Ala
						Met
						255
						Arg
Ala	Val	Thr	Asn	Tyr	Val	Cys
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						Leu
						Lys
						265
						Glu
						Ala
						Tyr
						Glu
						Glu
						270
						Gln
						Lys
Lys	Lys	Ala	Ala	Asp	His	Pro
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						Asn
						280
						Arg
						Thr
						Pro
						Ser
						Ile
						285
						Trp
						Leu
						Ala
Met	Tyr	Arg	Ala	Phe	Gly	Arg
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						Pro
						Ile
						Leu
						Leu
						Ser
						300
						Ser
						Thr
						Phe
						Arg
Tyr	Leu	Ala	Asp	Leu	Leu	Gly
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						Phe
						Ala
						Gly
						Pro
						315
						Leu
						Cys
						Ile
						Ser
						Gly
						320
Ile	Val	Gln	Arg	Val	Asn	Glu
						325
						Pro
						Lys
						Asn
						330
						Asn
						Thr
						Thr
						Arg
						Phe
						335
						Ser
Glu	Thr	Leu	Ser	Ser	Lys	Glu
						340
						Phe
						345
						Leu
						Glu
						Asn
						Ala
						His
						Val
						350
						Leu
						Ala
Val	Leu	Leu	Phe	Leu	Ala	Leu
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						Ile
						360
						Leu
						Gln
						Arg
						Thr
						Phe
						365
						Leu
						Gln
						Ala
Ser	Tyr	Tyr	Val	Thr	Ile	Glu
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						Thr
						Gly
						Ile
						Asn
						Leu
						380
						Arg
						Gly
						Ala
						Leu
Leu	Ala	Met	Ile	Tyr	Asn	Lys
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						Ile
						Leu
						Arg
						Leu
						390
						Ser
						Thr
						Ser
						Asn
						Leu
						400

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Ser Met Gly Glu Met Thr Leu Gly Gln Ile Asn Asn Leu Val Ala Ile
405 410 415

Glu Thr Asn Gln Leu Met Trp Phe Leu Phe Leu Cys Pro Asn Leu Trp
420 425 430

Ala Met Pro Val Gln Ile Ile Met Gly Val Ile Leu Leu Tyr Asn Leu
435 440 445

Leu Gly Ser Ser Ala Leu Val Gly Ala Ala Val Ile Val Leu Leu Ala
450 455 460

Pro Ile Gln Tyr Phe Ile Ala Thr Lys Leu Ala Glu Ala Gln Lys Ser
465 470 475 480

Thr Leu Asp Tyr Ser Thr Glu Arg Leu Lys Lys Thr Asn Glu Ile Leu
485 490 495

Lys Gly Ile Lys Leu Leu Lys Leu Tyr Ala Trp Glu His Ile Phe Cys
500 505 510

Lys Ser Val Glu Glu Thr Arg Met Lys Glu Leu Ser Ser Leu Lys Thr
515 520 525

Phe Ala Leu Tyr Thr Ser Leu Ser Ile Phe Met Asn Ala Ala Ile Pro
530 535 540

Ile Ala Ala Val Leu Ala Thr Phe Val Thr His Ala Tyr Ala Ser Gly
545 550 555 560

Asn Asn Leu Lys Pro Ala Glu Ala Phe Ala Ser Leu Ser Leu Phe His
565 570 575

Ile Leu Val Thr Pro Leu Phe Leu Leu Ser Thr Val Val Arg Phe Ala
580 585 590

Val Lys Ala Ile Ile Ser Val Gln Lys Leu Asn Glu Phe Leu Leu Ser
595 600 605

Asp Glu Ile Gly Glu Asp Ser Trp Arg Thr Gly Glu Gly Thr Leu Pro
610 615 620

Phe Glu Ser Cys Lys Lys His Thr Gly Val Gln Ser Lys Pro Ile Asn
625 630 635 640

Arg Lys Gln Pro Gly Arg Tyr His Leu Asp Asn Tyr Glu Gln Ala Arg
645 650 655

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Arg Leu Arg Pro Ala Glu Thr Glu Asp Val Ala Ile Lys Val Thr Asn
660 665 670

Gly Tyr Phe Ser Trp Gly Ser Gly Leu Ala Thr Leu Ser Asn Ile Asp
675 680 685

Ile Arg Ile Pro Thr Gly Gln Leu Thr Met Ile Val Gly Gln Val Gly
690 695 700

Cys Gly Lys Ser Ser Leu Leu Leu Ala Ile Leu Gly Glu Met Gln Thr
705 710 715 720

Leu Glu Gly Lys Val Tyr Trp Asn Asn Val Asn Glu Ser Glu Pro Ser
725 730 735

Phe Glu Ala Thr Arg Ser Arg Ser Arg Tyr Ser Val Ala Tyr Ala Ala
740 745 750

Gln Lys Pro Trp Leu Leu Asn Ala Thr Val Glu Glu Asn Ile Thr Phe
755 760 765

Gly Ser Ser Phe Asn Arg Gln Arg Tyr Lys Ala Val Thr Asp Ala Cys
770 775 780

Ser Leu Gln Pro Asp Ile Asp Leu Leu Pro Phe Gly Asp Gln Thr Glu
785 790 795 800

Ile Gly Glu Arg Gly Ile Asn Leu Ser Gly Gly Gln Arg Gln Arg Ile
805 810 815

Cys Val Ala Arg Ala Leu Tyr Gln Asn Thr Asn Ile Val Phe Leu Asp
820 825 830

Asp Pro Phe Ser Ala Leu Asp Ile His Leu Ser Asp His Leu Met Gln
835 840 845

Glu Gly Ile Leu Lys Phe Leu Gln Asp Asp Lys Arg Thr Val Val Leu
850 855 860

Val Thr His Lys Leu Gln Tyr Leu Thr His Ala Asp Trp Ile Ile Ala
865 870 875 880

Met Lys Asp Gly Ser Val Leu Arg Glu Gly Thr Leu Lys Asp Ile Gln
885 890 895

Thr Lys Asp Val Glu Leu Tyr Glu His Trp Lys Thr Leu Met Asn Arg
900 905 910

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Gln Asp Gln Glu Leu Glu Lys Asp Met Glu Ala Asp Gln Thr Thr Leu
915 920 925

Glu Arg Lys Thr Leu Arg Arg Ala Met Tyr Ser Arg Glu Ala Lys Ala
930 935 940

Gln Met Glu Asp Glu Asp Glu Glu Glu Glu Glu Glu Asp Glu Asp
945 950 955 960

Asp Asn Met Ser Thr Val Met Arg Leu Arg Thr Lys Met Pro Trp Lys
965 970 975

Thr Cys Trp Trp Tyr Leu Thr Ser Gly Gly Phe Phe Leu Leu Phe Leu
980 985 990

Met Ile Phe Ser Lys Leu Leu Lys His Ser Val Ile Val Ala Ile Asp
995 1000 1005

Tyr Trp Leu Ala Thr Trp Thr Ser Glu Tyr Ser Ile Asn Asp Pro
1010 1015 1020

Gly Lys Ala Asp Gln Thr Phe Tyr Val Ala Gly Phe Ser Ile Leu
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Cys Gly Ala Gly Ile Phe Leu Cys Leu Val Thr Ser Leu Thr Val
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Glu Trp Met Gly Leu Thr Ala Ala Lys Asn Leu His His Asn Leu
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Leu Asn Lys Ile Ile Leu Gly Pro Ile Arg Phe Phe Asp Thr Thr
1070 1075 1080

Pro Leu Gly Leu Ile Leu Asn Arg Phe Ser Ala Asp Thr Asn Ile
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Ile Asp Gln His Ile Pro Pro Thr Leu Glu Ser Leu Thr Arg Ser
1100 1105 1110

Thr Leu Leu Cys Leu Ser Ala Ile Gly Met Ile Ser Tyr Ala Thr
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Pro Val Phe Leu Ile Ala Leu Ala Pro Leu Gly Val Ala Phe Tyr
1130 1135 1140

Phe Ile Gln Lys Tyr Phe Arg Val Ala Ser Lys Asp Leu Gln Glu

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1155

1145	Leu Asp 1160	Asp Ser Thr Gln	Leu 1165	Pro Leu Leu Cys	His 1170	Phe Ser Glu
	Thr Ala 1175	Glu Gly Leu Thr	Thr 1180	Ile Arg Ala Phe	Arg 1185	His Glu Thr
	Arg Phe 1190	Lys Gln Arg Met	Leu 1195	Glu Leu Thr Asp	Thr 1200	Asn Asn Ile
	Ala Tyr 1205	Leu Phe Leu Ser	Ala 1210	Ala Asn Arg Trp	Leu 1215	Glu Val Arg
	Thr Asp 1220	Tyr Leu Gly Ala	Cys 1225	Ile Val Leu Thr	Ala 1230	Ser Ile Ala
	Ser Ile 1235	Ser Gly Ser Ser	Asn 1240	Ser Gly Leu Val	Gly 1245	Leu Gly Leu
	Leu Tyr 1250	Ala Leu Thr Ile	Thr 1255	Asn Tyr Leu Asn	Trp 1260	Val Val Arg
	Asn Leu 1265	Ala Asp Leu Glu	Val 1270	Gln Met Gly Ala	Val 1275	Lys Lys Val
	Asn Ser 1280	Phe Leu Thr Met	Glu 1285	Ser Glu Asn Tyr	Glu 1290	Gly Thr Met
	Asp Pro 1295	Ser Gln Val Pro	Glu 1300	His Trp Pro Gln	Glu 1305	Gly Glu Ile
	Lys Ile 1310	His Asp Leu Cys	Val 1315	Arg Tyr Glu Asn	Asn 1320	Leu Lys Pro
	Val Leu 1325	Lys His Val Lys	Ala 1330	Tyr Ile Lys Pro	Gly 1335	Gln Lys Val
	Gly Ile 1340	Cys Gly Arg Thr	Gly 1345	Ser Gly Lys Ser	Ser 1350	Leu Ser Leu
	Ala Phe 1355	Phe Arg Met Val	Asp 1360	Ile Phe Asp Gly	Lys 1365	Ile Val Ile
	Asp Gly 1370	Ile Asp Ile Ser	Lys 1375	Leu Pro Leu His	Thr 1380	Leu Arg Ser

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Arg	Leu	Ser	Ile	Ile	Leu	Gln	Asp	Pro	Ile	Leu	Phe	Ser	Gly	Ser
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Ile	Arg	Phe	Asn	Leu	Asp	Pro	Glu	Cys	Lys	Cys	Thr	Asp	Asp	Arg
	1400					1405					1410			
Leu	Trp	Glu	Ala	Leu	Glu	Ile	Ala	Gln	Leu	Lys	Asn	Met	Val	Lys
	1415					1420					1425			
Ser	Leu	Pro	Gly	Gly	Leu	Asp	Ala	Thr	Val	Thr	Glu	Gly	Gly	Glu
	1430					1435					1440			
Asn	Phe	Ser	Val	Gly	Gln	Arg	Gln	Leu	Phe	Cys	Leu	Ala	Arg	Ala
	1445					1450					1455			
Phe	Val	Arg	Lys	Ser	Ser	Ile	Leu	Ile	Met	Asp	Glu	Ala	Thr	Ala
	1460					1465					1470			
Ser	Ile	Asp	Met	Ala	Thr	Glu	Asn	Ile	Leu	Gln	Lys	Val	Val	Met
	1475					1480					1485			
Thr	Ala	Phe	Ala	Asp	Arg	Thr	Val	Val	Thr	Ile	Ala	His	Arg	Val
	1490					1495					1500			
Ser	Ser	Ile	Met	Asp	Ala	Gly	Leu	Val	Leu	Val	Phe	Ser	Glu	Gly
	1505					1510					1515			
Ile	Leu	Val	Glu	Cys	Asp	Thr	Gly	Pro	Asn	Leu	Leu	Gln	His	Lys
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Asn	Gly	Leu	Phe	Ser	Thr	Leu	Val	Met	Thr	Asn	Lys	Gly	Gly	Gly
	1535					1540					1545			
Gly	Gly	Gly	Met	Leu	Ser	Arg	Lys	Gly	Ile	Ile	Pro	Glu	Glu	Tyr
	1550					1555					1560			
Val	Leu	Thr	Arg	Leu	Ala	Glu	Asp	Pro	Ala	Glu	Pro	Arg	Tyr	Arg
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Thr	Arg	Glu	Arg	Arg	Ala	Arg	Phe	Val	Ser	Lys	Lys	Gly	Asn	Cys
	1580					1585					1590			
Asn	Val	Ala	His	Lys	Asn	Ile	Arg	Glu	Gln	Gly	Arg	Phe	Leu	Gln
	1595					1600					1605			
Asp	Val	Phe	Thr	Thr	Leu	Val	Asp	Leu	Lys	Trp	Pro	His	Thr	Leu
	1610					1615					1620			

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Leu Ile Phe Thr Met Ser Phe Leu Cys Ser Trp Leu Leu Phe Ala
1625 1630 1635

Met Val Trp Trp Leu Ile Ala Phe Ala His Gly Asp Leu Ala Pro
1640 1645 1650

Gly Glu Gly Thr Asn Val Pro Cys Val Thr Ser Ile His Ser Phe
1655 1660 1665

Ser Ser Ala Phe Leu Phe Ser Ile Glu Val Gln Val Thr Ile Gly
1670 1675 1680

Phe Gly Gly Arg Met Val Thr Glu Glu Cys Pro Leu Ala Ile Leu
1685 1690 1695

Ile Leu Ile Val Gln Asn Ile Val Gly Leu Met Ile Asn Ala Ile
1700 1705 1710

Met Leu Gly Cys Ile Phe Met Lys Thr Ala Gln Ala His Arg Arg
1715 1720 1725

Ala Glu Thr Leu Ile Phe Ser Lys His Ala Val Ile Thr Leu Arg
1730 1735 1740

His Gly Arg Leu Cys Phe Met Leu Arg Val Gly Asp Leu Arg Lys
1745 1750 1755

Ser Met Ile Ile Ser Ala Thr Ile His Met Gln Val Val Arg Lys
1760 1765 1770

Thr Thr Ser Pro Glu Gly Glu Val Val Pro Leu His Gln Val Asp
1775 1780 1785

Ile Pro Met Glu Asn Gly Val Gly Gly Asn Gly Ile Phe Leu Val
1790 1795 1800

Ala Pro Leu Ile Ile Tyr His Val Ile Asp Ser Asn Ser Pro Leu
1805 1810 1815

Tyr Asp Leu Ala Pro Ser Asp Leu His His His Gln Asp Leu Glu
1820 1825 1830

Ile Ile Val Ile Leu Glu Gly Val Val Glu Thr Thr Gly Ile Thr
1835 1840 1845

Thr Gln Ala Arg Thr Ser Tyr Leu Ala Asp Glu Ile Leu Trp Gly
1850 1855 1860

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Gln Arg Phe Val Pro Ile Val Ala Glu Glu Asp Gly Arg Tyr Ser
1865 1870 1875

Val Asp Tyr Ser Lys Phe Gly Asn Thr Ile Lys Val Pro Thr Pro
1880 1885 1890

Leu Cys Thr Ala Arg Gln Leu Asp Glu Asp Arg Ser
1895 1900 1905

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<213> Homo sapiens

<400> 4

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Phe Gln Asn Thr Val Leu Val Trp Val Pro Cys Phe Tyr Leu Trp Ala
35 40 45

Cys Phe Pro Phe Tyr Phe Leu Tyr Leu Ser Arg His Asp Arg Gly Tyr
50 55 60

Ile Gln Met Thr Pro Leu Asn Lys Thr Lys Thr Ala Leu Gly Phe Leu
65 70 75 80

Leu Trp Ile Val Cys Trp Ala Asp Leu Phe Tyr Ser Phe Trp Glu Arg
85 90 95

Ser Arg Gly Ile Phe Leu Ala Pro Val Phe Leu Val Ser Pro Thr Leu
100 105 110

Leu Gly Ile Thr Thr Leu Leu Ala Thr Phe Leu Ile Gln Leu Glu Arg
115 120 125

Arg Lys Gly Val Gln Ser Ser Gly Ile Met Leu Thr Phe Trp Leu Val
130 135 140

Ala Leu Val Cys Ala Leu Ala Ile Leu Arg Ser Lys Ile Met Thr Ala
145 150 155 160

Leu Lys Glu Asp Ala Gln Val Asp Leu Phe Arg Asp Ile Thr Phe Tyr
165 170 175

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Val Tyr Phe Ser Leu Leu Leu Ile Gln Leu Val Leu Ser Cys Phe Ser
 180 185 190
 Asp Arg Ser Pro Leu Phe Ser Glu Thr Ile His Asp Pro Asn Pro Cys
 195 200 205
 Pro Glu Ser Ser Ala Ser Phe Leu Ser Arg Ile Thr Phe Trp Trp Ile
 210 215 220
 Thr Gly Leu Ile Val Arg Gly Tyr Arg Gln Pro Leu Glu Gly Ser Asp
 225 230 235 240
 Leu Trp Ser Leu Asn Lys Glu Asp Thr Ser Glu Gln Val Val Pro Val
 245 250 255
 Leu Val Lys Asn Trp Lys Lys Glu Cys Ala Lys Thr Arg Lys Gln Pro
 260 265 270
 Val Lys Val Val Tyr Ser Ser Lys Asp Pro Ala Gln Pro Lys Glu Ser
 275 280 285
 Ser Lys Val Asp Ala Asn Glu Glu Val Glu Ala Leu Ile Val Lys Ser
 290 295 300
 Pro Gln Lys Glu Trp Asn Pro Ser Leu Phe Lys Val Leu Tyr Lys Thr
 305 310 315 320
 Phe Gly Pro Tyr Phe Leu Met Ser Phe Phe Phe Lys Ala Ile His Asp
 325 330 335
 Leu Met Met Phe Ser Gly Pro Gln Ile Leu Lys Leu Leu Ile Lys Phe
 340 345 350
 Val Asn Asp Thr Lys Ala Pro Asp Trp Gln Gly Tyr Phe Tyr Thr Val
 355 360 365
 Leu Leu Phe Val Thr Ala Cys Leu Gln Thr Leu Val Leu His Gln Tyr
 370 375 380
 Phe His Ile Cys Phe Val Ser Gly Met Arg Ile Lys Thr Ala Val Ile
 385 390 395 400
 Gly Ala Val Tyr Arg Lys Ala Leu Val Ile Thr Asn Ser Ala Arg Lys
 405 410 415
 Ser Ser Thr Val Gly Glu Ile Val Asn Leu Met Ser Val Asp Ala Gln
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420

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425

430

Arg Phe Met Asp Leu Ala Thr Tyr Ile Asn Met Ile Trp Ser Ala Pro
 435 440 445

Leu Gln Val Ile Leu Ala Leu Tyr Leu Leu Trp Leu Asn Leu Gly Pro
 450 455 460

Ser Val Leu Ala Gly Val Ala Val Met Val Leu Met Val Pro Val Asn
 465 470 475 480

Ala Val Met Ala Met Lys Thr Lys Thr Tyr Gln Val Ala His Met Lys
 485 490 495

Ser Lys Asp Asn Arg Ile Lys Leu Met Asn Glu Ile Leu Asn Gly Ile
 500 505 510

Lys Val Leu Lys Leu Tyr Ala Trp Glu Leu Ala Phe Lys Asp Lys Val
 515 520 525

Leu Ala Ile Arg Gln Glu Glu Leu Lys Val Leu Lys Lys Ser Ala Tyr
 530 535 540

Leu Ser Ala Val Gly Thr Phe Thr Trp Val Cys Thr Pro Phe Leu Val
 545 550 555 560

Ala Leu Cys Thr Phe Ala Val Tyr Val Thr Ile Asp Glu Asn Asn Ile
 565 570 575

Leu Asp Ala Gln Thr Ala Phe Val Ser Leu Ala Leu Phe Asn Ile Leu
 580 585 590

Arg Phe Pro Leu Asn Ile Leu Pro Met Val Ile Ser Ser Ile Val Gln
 595 600 605

Ala Ser Val Ser Leu Lys Arg Leu Arg Ile Phe Leu Ser His Glu Glu
 610 615 620

Leu Glu Pro Asp Ser Ile Glu Arg Arg Pro Val Lys Asp Gly Gly Gly
 625 630 635 640

Thr Asn Ser Ile Thr Val Arg Asn Ala Thr Phe Thr Trp Ala Arg Ser
 645 650 655

Asp Pro Pro Thr Leu Asn Gly Ile Thr Phe Ser Ile Pro Glu Gly Ala
 660 665 670

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Leu Val Ala Val Val Gly Gln Val Gly Cys Gly Lys Ser Ser Leu Leu
 675 680 685
 Ser Ala Leu Leu Ala Glu Met Asp Lys Val Glu Gly His Val Ala Ile
 690 695 700
 Lys Gly Ser Val Ala Tyr Val Pro Gln Gln Ala Trp Ile Gln Asn Asp
 705 710 715 720
 Ser Leu Arg Glu Asn Ile Leu Phe Gly Cys Gln Leu Glu Glu Pro Tyr
 725 730 735
 Tyr Arg Ser Val Ile Gln Ala Cys Ala Leu Leu Pro Asp Leu Glu Ile
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 Leu Pro Ser Gly Asp Arg Thr Glu Ile Gly Glu Lys Gly Val Asn Leu
 755 760 765
 Ser Gly Gly Gln Lys Gln Arg Val Ser Leu Ala Arg Ala Val Tyr Ser
 770 775 780
 Asn Ala Asp Ile Tyr Leu Phe Asp Asp Pro Leu Ser Ala Val Asp Ala
 785 790 795 800
 His Val Gly Lys His Ile Phe Glu Asn Val Ile Gly Pro Lys Gly Met
 805 810 815
 Leu Lys Asn Lys Thr Arg Ile Leu Val Thr His Ser Met Ser Tyr Leu
 820 825 830
 Pro Gln Val Asp Val Ile Ile Val Met Ser Gly Gly Lys Ile Ser Glu
 835 840 845
 Met Gly Ser Tyr Gln Glu Leu Leu Ala Arg Asp Gly Ala Phe Ala Glu
 850 855 860
 Phe Leu Arg Thr Tyr Ala Ser Thr Glu Gln Glu Gln Asp Ala Glu Glu
 865 870 875 880
 Asn Gly Val Thr Gly Val Ser Gly Pro Gly Lys Glu Ala Lys Gln Met
 885 890 895
 Glu Asn Gly Met Leu Val Thr Asp Ser Ala Gly Lys Gln Leu Gln Arg
 900 905 910
 Gln Leu Ser Ser Ser Ser Tyr Ser Gly Asp Ile Ser Arg His His
 915 920 925

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Asn Ser Thr Ala Glu Leu Gln Lys Ala Glu Ala Lys Lys Glu Glu Thr
 930 935 940
 Trp Lys Leu Met Glu Ala Asp Lys Ala Gln Thr Gly Gln Val Lys Leu
 945 950 955 960
 Ser Val Tyr Trp Asp Tyr Met Lys Ala Ile Gly Leu Phe Ile Ser Phe
 965 970 975
 Leu Ser Ile Phe Leu Phe Met Cys Asn His Val Ser Ala Leu Ala Ser
 980 985 990
 Asn Tyr Trp Leu Ser Leu Trp Thr Asp Asp Pro Ile Val Asn Gly Thr
 995 1000 1005
 Gln Glu His Thr Lys Val Arg Leu Ser Val Tyr Gly Ala Leu Gly
 1010 1015 1020
 Ile Ser Gln Gly Ile Ala Val Phe Gly Tyr Ser Met Ala Val Ser
 1025 1030 1035
 Ile Gly Gly Ile Leu Ala Ser Arg Cys Leu His Val Asp Leu Leu
 1040 1045 1050
 His Ser Ile Leu Arg Ser Pro Met Ser Phe Phe Glu Arg Thr Pro
 1055 1060 1065
 Ser Gly Asn Leu Val Asn Arg Phe Ser Lys Glu Leu Asp Thr Val
 1070 1075 1080
 Asp Ser Met Ile Pro Glu Val Ile Lys Met Phe Met Gly Ser Leu
 1085 1090 1095
 Phe Asn Val Ile Gly Ala Cys Ile Val Ile Leu Leu Ala Thr Pro
 1100 1105 1110
 Ile Ala Ala Ile Ile Ile Pro Pro Leu Gly Leu Ile Tyr Phe Phe
 1115 1120 1125
 Val Gln Arg Phe Tyr Val Ala Ser Ser Arg Gln Leu Lys Arg Leu
 1130 1135 1140
 Glu Ser Val Ser Arg Ser Pro Val Tyr Ser His Phe Asn Glu Thr
 1145 1150 1155
 Leu Leu Gly Val Ser Val Ile Arg Ala Phe Glu Glu Gln Glu Arg
 1160 1165 1170

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Phe Ile His Gln Ser Asp Leu Lys Val Asp Glu Asn Gln Lys Ala
 1175 1180 1185
 Tyr Tyr Pro Ser Ile Val Ala Asn Arg Trp Leu Ala Val Arg Leu
 1190 1195 1200
 Glu Cys Val Gly Asn Cys Ile Val Leu Phe Ala Ala Leu Phe Ala
 1205 1210 1215
 Val Ile Ser Arg His Ser Leu Ser Ala Gly Leu Val Gly Leu Ser
 1220 1225 1230
 Val Ser Tyr Ser Leu Gln Val Thr Thr Tyr Leu Asn Trp Leu Val
 1235 1240 1245
 Arg Met Ser Ser Glu Met Glu Thr Asn Ile Val Ala Val Glu Arg
 1250 1255 1260
 Leu Lys Glu Tyr Ser Glu Thr Glu Lys Glu Ala Pro Trp Gln Ile
 1265 1270 1275
 Gln Glu Thr Ala Pro Pro Ser Ser Trp Pro Gln Val Gly Arg Val
 1280 1285 1290
 Glu Phe Arg Asn Tyr Cys Leu Arg Tyr Arg Glu Asp Leu Asp Phe
 1295 1300 1305
 Val Leu Arg His Ile Asn Val Thr Ile Asn Gly Gly Glu Lys Val
 1310 1315 1320
 Gly Ile Val Gly Arg Thr Gly Ala Gly Lys Ser Ser Leu Thr Leu
 1325 1330 1335
 Gly Leu Phe Arg Ile Asn Glu Ser Ala Glu Gly Glu Ile Ile Ile
 1340 1345 1350
 Asp Gly Ile Asn Ile Ala Lys Ile Gly Leu His Asp Leu Arg Phe
 1355 1360 1365
 Lys Ile Thr Ile Ile Pro Gln Asp Pro Val Leu Phe Ser Gly Ser
 1370 1375 1380
 Leu Arg Met Asn Leu Asp Pro Phe Ser Gln Tyr Ser Asp Glu Glu
 1385 1390 1395
 Val Trp Thr Ser Leu Glu Leu Ala His Leu Lys Asp Phe Val Ser
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1400		1405		1410	
Ala Leu	Pro Asp Lys Leu	Asp	His Glu Cys Ala	Glu	Gly Gly Glu
1415		1420		1425	
Asn Leu	Ser Val Gly Gln	Arg	Gln Leu Val Cys	Leu	Ala Arg Ala
1430		1435		1440	
Leu Leu	Arg Lys Thr Lys	Ile	Leu Val Leu Asp	Glu	Ala Thr Ala
1445		1450		1455	
Ala Val	Asp Leu Glu Thr	Asp	Asp Leu Ile Gln	Ser	Thr Ile Arg
1460		1465		1470	
Thr Gln	Phe Glu Asp Cys	Thr	Val Leu Thr Ile	Ala	His Arg Leu
1475		1480		1485	
Asn Thr	Ile Met Asp Tyr	Thr	Arg Val Ile Val	Leu	Asp Lys Gly
1490		1495		1500	
Glu Ile	Gln Glu Tyr Gly	Ala	Pro Ser Asp Leu	Leu	Gln Gln Arg
1505		1510		1515	
Gly Leu	Phe Tyr Ser Met	Ala	Lys Asp Ala Gly	Leu	Val Gly Gly
1520		1525		1530	
Gly Gly	Gly Gly Met Leu	Ser	Arg Lys Gly Ile	Ile	Pro Glu Glu
1535		1540		1545	
Tyr Val	Leu Thr Arg Leu	Ala	Glu Asp Pro Ala	Glu	Pro Arg Tyr
1550		1555		1560	
Arg Thr	Arg Glu Arg Arg	Ala	Arg Phe Val Ser	Lys	Lys Gly Asn
1565		1570		1575	
Cys Asn	Val Ala His Lys	Asn	Ile Arg Glu Gln	Gly	Arg Phe Leu
1580		1585		1590	
Gln Asp	Val Phe Thr Thr	Leu	Val Asp Leu Lys	Trp	Pro His Thr
1595		1600		1605	
Leu Leu	Ile Phe Thr Met	Ser	Phe Leu Cys Ser	Trp	Leu Leu Phe
1610		1615		1620	
Ala Met	Val Trp Trp Leu	Ile	Ala Phe Ala His	Gly	Asp Leu Ala
1625		1630		1635	

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Pro Gly Glu Gly Thr Asn Val Pro Cys Val Thr Ser Ile His Ser
1640 1645 1650

Phe Ser Ser Ala Phe Leu Phe Ser Ile Glu Val Gln Val Thr Ile
1655 1660 1665

Gly Phe Gly Gly Arg Met Val Thr Glu Glu Cys Pro Leu Ala Ile
1670 1675 1680

Leu Ile Leu Ile Val Gln Asn Ile Val Gly Leu Met Ile Asn Ala
1685 1690 1695

Ile Met Leu Gly Cys Ile Phe Met Lys Thr Ala Gln Ala His Arg
1700 1705 1710

Arg Ala Glu Thr Leu Ile Phe Ser Lys His Ala Val Ile Thr Leu
1715 1720 1725

Arg His Gly Arg Leu Cys Phe Met Leu Arg Val Gly Asp Leu Arg
1730 1735 1740

Lys Ser Met Ile Ile Ser Ala Thr Ile His Met Gln Val Val Arg
1745 1750 1755

Lys Thr Thr Ser Pro Glu Gly Glu Val Val Pro Leu His Gln Val
1760 1765 1770

Asp Ile Pro Met Glu Asn Gly Val Gly Gly Asn Gly Ile Phe Leu
1775 1780 1785

Val Ala Pro Leu Ile Ile Tyr His Val Ile Asp Ser Asn Ser Pro
1790 1795 1800

Leu Tyr Asp Leu Ala Pro Ser Asp Leu His His His Gln Asp Leu
1805 1810 1815

Glu Ile Ile Val Ile Leu Glu Gly Val Val Glu Thr Thr Gly Ile
1820 1825 1830

Thr Thr Gln Ala Arg Thr Ser Tyr Leu Ala Asp Glu Ile Leu Trp
1835 1840 1845

Gly Gln Arg Phe Val Pro Ile Val Ala Glu Glu Asp Gly Arg Tyr
1850 1855 1860

Ser Val Asp Tyr Ser Lys Phe Gly Asn Thr Ile Lys Val Pro Thr
1865 1870 1875

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Pro Leu Cys Thr Ala Arg Gln Leu Asp Glu Asp Arg Ser
1880 1885 1890

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Ile Asp Gly Val Ile Leu Asn Leu Ser Ala Ile Phe Met Ile Thr Phe
35 40 45

Gly Ile Arg Asp Leu Val Asn Leu Cys Lys Lys Lys His Ser Gly Ile
50 55 60

Lys Tyr Arg Arg Asn Trp Ile Ile Val Ser Arg Met Ala Leu Val Leu
65 70 75 80

Leu Glu Ile Ala Phe Val Ser Leu Ala Ser Leu Asn Ile Ser Lys Glu
85 90 95

Glu Ala Glu Asn Phe Thr Ile Val Ser Gln Tyr Ala Ser Thr Met Leu
100 105 110

Ser Leu Phe Val Ala Leu Ala Leu His Trp Ile Glu Tyr Asp Arg Ser
115 120 125

Val Val Ala Asn Thr Val Leu Leu Phe Tyr Trp Leu Phe Glu Thr Phe
130 135 140

Gly Asn Phe Ala Lys Leu Ile Asn Ile Leu Ile Arg His Thr Tyr Glu
145 150 155 160

Gly Ile Trp Tyr Ser Gly Gln Thr Gly Phe Ile Leu Thr Leu Phe Gln
165 170 175

Val Ile Thr Cys Ala Ser Ile Leu Leu Leu Glu Ala Leu Pro Lys Lys
180 185 190

Pro Leu Met Pro His Gln His Ile His Gln Thr Leu Thr Arg Arg Lys
195 200 205

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Pro Asn Pro Tyr Asp Ser Ala Asn Ile Phe Ser Arg Ile Thr Phe Ser
210 215 220

Trp Met Ser Gly Leu Met Lys Thr Gly Tyr Glu Lys Tyr Leu Val Glu
225 230 235 240

Ala Asp Leu Tyr Lys Leu Pro Arg Asn Phe Ser Ser Glu Glu Leu Ser
245 250 255

Gln Lys Leu Glu Lys Asn Trp Glu Asn Glu Leu Lys Gln Lys Ser Asn
260 265 270

Pro Ser Leu Ser Trp Ala Ile Cys Arg Thr Phe Gly Ser Lys Met Leu
275 280 285

Leu Ala Ala Phe Phe Lys Ala Ile His Asp Val Leu Ala Phe Thr Gln
290 295 300

Pro Gln Leu Leu Arg Ile Leu Ile Lys Phe Val Thr Asp Tyr Asn Ser
305 310 315 320

Glu Arg Gln Asp Asp His Ser Ser Leu Gln Gly Phe Glu Asn Asn His
325 330 335

Pro Gln Lys Leu Pro Ile Val Arg Gly Phe Leu Ile Ala Phe Ala Met
340 345 350

Phe Leu Val Gly Phe Thr Gln Thr Ser Val Leu His Gln Tyr Phe Leu
355 360 365

Asn Val Phe Asn Thr Gly Met Tyr Ile Lys Ser Ala Leu Thr Ala Leu
370 375 380

Ile Tyr Gln Lys Ser Leu Val Leu Ser Asn Glu Ala Ser Gly Leu Ser
385 390 395 400

Ser Thr Gly Asp Ile Val Asn Leu Met Ser Val Asp Val Gln Lys Leu
405 410 415

Gln Asp Leu Thr Gln Trp Leu Asn Leu Ile Trp Ser Gly Pro Phe Gln
420 425 430

Ile Ile Ile Cys Leu Tyr Ser Leu Tyr Lys Leu Leu Gly Asn Ser Met
435 440 445

Trp Val Gly Val Ile Ile Leu Val Ile Met Met Pro Leu Asn Ser Phe
450 455 460

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Leu Met Arg Ile Gln Lys Lys Leu Gln Lys Ser Gln Met Lys Tyr Lys
 465 470 475 480
 Asp Glu Arg Thr Arg Val Ile Ser Glu Ile Leu Asn Asn Ile Lys Ser
 485 490 495
 Leu Lys Leu Tyr Ala Trp Glu Lys Pro Tyr Arg Glu Lys Leu Glu Glu
 500 505 510
 Val Arg Asn Asn Lys Glu Leu Lys Asn Leu Thr Lys Leu Gly Cys Tyr
 515 520 525
 Met Ala Val Thr Ser Phe Gln Phe Asn Ile Val Pro Phe Leu Val Ser
 530 535 540
 Cys Cys Thr Phe Ala Val Phe Val Tyr Thr Glu Asp Arg Ala Leu Thr
 545 550 555 560
 Thr Asp Leu Val Phe Pro Ala Leu Thr Leu Phe Asn Leu Leu Ser Phe
 565 570 575
 Pro Leu Met Ile Ile Pro Met Val Leu Asn Ser Phe Ile Glu Ala Ser
 580 585 590
 Val Ser Ile Gly Arg Leu Phe Thr Phe Phe Thr Asn Glu Glu Leu Gln
 595 600 605
 Pro Asp Ser Val Gln Arg Leu Pro Lys Val Lys Asn Ile Gly Asp Val
 610 615 620
 Ala Ile Asn Ile Gly Asp Asp Ala Thr Phe Leu Trp Gln Arg Lys Pro
 625 630 635 640
 Glu Tyr Lys Val Ala Leu Lys Asn Ile Asn Phe Gln Ala Lys Lys Gly
 645 650 655
 Asn Leu Thr Cys Ile Val Gly Lys Val Gly Ser Gly Lys Thr Ala Leu
 660 665 670
 Leu Ser Cys Met Leu Gly Asp Arg Phe Arg Val Lys Gly Phe Ala Thr
 675 680 685
 Val His Gly Ser Val Ala Tyr Val Ser Gln Val Pro Trp Ile Met Asn
 690 695 700
 Gly Thr Val Lys Glu Asn Ile Leu Phe Gly His Arg Tyr Asp Ala Glu
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705		710		715		720
Phe Tyr Glu Lys Thr	Ile Lys Ala Cys Ala	Leu Thr Ile Asp	Leu Ala			
	725		730			735
Ile Leu Met Asp Gly Asp Lys Thr	Leu Val Gly Glu Lys Gly	Ile Ser				
	740		745			750
Leu Ser Gly Gly Gln Lys Ala Arg	Leu Ser Leu Ala Arg	Ala Val Tyr				
	755		760			765
Ala Arg Ala Asp Thr Tyr	Leu Leu Asp Asp Pro	Leu Ala Ala Val Asp				
	770		775			780
Glu His Val Ala Arg His	Leu Ile Glu His Val	Leu Gly Pro Asn Gly				
	785		790			795
Leu Leu His Thr Lys Thr Lys Val	Leu Ala Thr Asn Lys Val	Ser Ala				
	805		810			815
Leu Ser Ile Ala Asp Ser Ile Ala	Leu Leu Asp Asn Gly Glu	Ile Thr				
	820		825			830
Gln Gln Gly Thr Tyr Asp Glu	Ile Thr Lys Asp Ala Asp	Ser Pro Leu				
	835		840			845
Trp Lys Leu Leu Asn Asn Tyr	Gly Lys Lys Asn Asn	Gly Lys Ser Asn				
	850		855			860
Glu Phe Gly Asp Ser Ser	Glu Ser Ser Val Arg	Glu Ser Ser Ile Pro				
	865		870			875
Val Glu Gly Glu Leu Glu Gln	Leu Gln Lys Leu Asn Asp	Leu Asp Phe				
	885		890			895
Gly Asn Ser Asp Ala Ile Ser	Leu Arg Arg Ala Ser Asp	Ala Thr Leu				
	900		905			910
Gly Ser Ile Asp Phe Gly Asp	Asp Glu Asn Ile Ala Lys	Arg Glu His				
	915		920			925
Arg Glu Gln Gly Lys Val	Lys Trp Asn Ile Tyr	Leu Glu Tyr Ala Lys				
	930		935			940
Ala Cys Asn Pro Lys Ser	Val Cys Val Phe Ile	Leu Phe Ile Val Ile				
	945		950			955
						960

Ser Met Phe Leu Ser Val Met Gly Asn Val Trp Leu Lys His Trp Ser
 965 970 975

Glu Val Asn Ser Arg Tyr Gly Ser Asn Pro Asn Ala Ala Arg Tyr Leu
 980 985 990

Ala Ile Tyr Phe Ala Leu Gly Ile Gly Ser Ala Leu Ala Thr Leu Ile
 995 1000 1005

Gln Thr Ile Val Leu Trp Val Phe Cys Thr Ile His Ala Ser Lys
 1010 1015 1020

Tyr Leu His Asn Leu Met Thr Asn Ser Val Leu Arg Ala Pro Met
 1025 1030 1035

Thr Phe Phe Glu Thr Thr Pro Ile Gly Arg Ile Leu Asn Arg Phe
 1040 1045 1050

Ser Asn Asp Ile Tyr Lys Val Asp Ala Leu Leu Gly Arg Thr Phe
 1055 1060 1065

Ser Gln Phe Phe Val Asn Ala Val Lys Val Thr Phe Thr Ile Thr
 1070 1075 1080

Val Ile Cys Ala Thr Thr Trp Gln Phe Ile Phe Ile Ile Ile Pro
 1085 1090 1095

Leu Ser Val Phe Tyr Ile Tyr Tyr Gln Gln Tyr Tyr Leu Arg Thr
 1100 1105 1110

Ser Arg Glu Leu Arg Arg Leu Asp Ser Ile Thr Arg Ser Pro Ile
 1115 1120 1125

Tyr Ser His Phe Gln Glu Thr Leu Gly Gly Leu Ala Thr Val Arg
 1130 1135 1140

Gly Tyr Ser Gln Gln Lys Arg Phe Ser His Ile Asn Gln Cys Arg
 1145 1150 1155

Ile Asp Asn Asn Met Ser Ala Phe Tyr Pro Ser Ile Asn Ala Asn
 1160 1165 1170

Arg Trp Leu Ala Tyr Arg Leu Glu Leu Ile Gly Ser Ile Ile Ile
 1175 1180 1185

Leu Gly Ala Ala Thr Leu Ser Val Phe Arg Leu Lys Gln Gly Thr
 1190 1195 1200

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Leu	Thr	Ala	Gly	Met	Val	Gly	Leu	Ser	Leu	Ser	Tyr	Ala	Leu	Gln
	1205					1210					1215			
Ile	Thr	Gln	Thr	Leu	Asn	Trp	Ile	Val	Arg	Met	Thr	Val	Glu	Val
	1220					1225					1230			
Glu	Thr	Asn	Ile	Val	Ser	Val	Glu	Arg	Ile	Lys	Glu	Tyr	Ala	Asp
	1235					1240					1245			
Leu	Lys	Ser	Glu	Ala	Pro	Leu	Ile	Val	Glu	Gly	His	Arg	Pro	Pro
	1250					1255					1260			
Lys	Glu	Trp	Pro	Ser	Gln	Gly	Asp	Ile	Lys	Phe	Asn	Asn	Tyr	Ser
	1265					1270					1275			
Thr	Arg	Tyr	Arg	Pro	Glu	Leu	Asp	Leu	Val	Leu	Lys	His	Ile	Asn
	1280					1285					1290			
Ile	His	Ile	Lys	Pro	Asn	Glu	Lys	Val	Gly	Ile	Val	Gly	Arg	Thr
	1295					1300					1305			
Gly	Ala	Gly	Lys	Ser	Ser	Leu	Thr	Leu	Ala	Leu	Phe	Arg	Met	Ile
	1310					1315					1320			
Glu	Ala	Ser	Glu	Gly	Asn	Ile	Val	Ile	Asp	Asn	Ile	Ala	Ile	Asn
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Glu	Ile	Gly	Leu	Tyr	Asp	Leu	Arg	His	Lys	Leu	Ser	Ile	Ile	Pro
	1340					1345					1350			
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Leu	Ser	His	Leu	Lys	Glu	His	Val	Leu	Ser	Met	Ser	Asn	Asp	Gly
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Leu	Asp	Ala	Gln	Leu	Thr	Glu	Gly	Gly	Gly	Asn	Leu	Ser	Val	Gly
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Gln	Arg	Gln	Leu	Leu	Cys	Leu	Ala	Arg	Ala	Met	Leu	Val	Pro	Ser
	1415					1420					1425			
Lys	Ile	Leu	Val	Leu	Asp	Glu	Ala	Thr	Ala	Ala	Val	Asp	Val	Glu
	1430					1435					1440			

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Thr Asp Lys Val Val Gln Glu Thr Ile Arg Thr Ala Phe Lys Asp
 1445 1450 1455
 Arg Thr Ile Leu Thr Ile Ala His Arg Leu Asn Thr Ile Met Asp
 1460 1465 1470
 Ser Asp Arg Ile Ile Val Leu Asp Asn Gly Lys Val Ala Glu Phe
 1475 1480 1485
 Asp Ser Pro Gly Gln Leu Leu Ser Asp Asn Lys Ser Leu Phe Tyr
 1490 1495 1500
 Ser Leu Cys Met Glu Ala Gly Leu Val Asn Glu Asn Gly Gly Gly
 1505 1510 1515
 Gly Gly Gly Met Leu Ser Arg Lys Gly Ile Ile Pro Glu Glu Tyr
 1520 1525 1530
 Val Leu Thr Arg Leu Ala Glu Asp Pro Ala Glu Pro Arg Tyr Arg
 1535 1540 1545
 Thr Arg Glu Arg Arg Ala Arg Phe Val Ser Lys Lys Gly Asn Cys
 1550 1555 1560
 Asn Val Ala His Lys Asn Ile Arg Glu Gln Gly Arg Phe Leu Gln
 1565 1570 1575
 Asp Val Phe Thr Thr Leu Val Asp Leu Lys Trp Pro His Thr Leu
 1580 1585 1590
 Leu Ile Phe Thr Met Ser Phe Leu Cys Ser Trp Leu Leu Phe Ala
 1595 1600 1605
 Met Val Trp Trp Leu Ile Ala Phe Ala His Gly Asp Leu Ala Pro
 1610 1615 1620
 Gly Glu Gly Thr Asn Val Pro Cys Val Thr Ser Ile His Ser Phe
 1625 1630 1635
 Ser Ser Ala Phe Leu Phe Ser Ile Glu Val Gln Val Thr Ile Gly
 1640 1645 1650
 Phe Gly Gly Arg Met Val Thr Glu Glu Cys Pro Leu Ala Ile Leu
 1655 1660 1665
 Ile Leu Ile Val Gln Asn Ile Val Gly Leu Met Ile Asn Ala Ile
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1680

1670

1675

Met	Leu	Gly	Cys	Ile	Phe	Met	Lys	Thr	Ala	Gln	Ala	His	Arg	Arg
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Ala	Glu	Thr	Leu	Ile	Phe	Ser	Lys	His	Ala	Val	Ile	Thr	Leu	Arg
1700						1705					1710			
His	Gly	Arg	Leu	Cys	Phe	Met	Leu	Arg	Val	Gly	Asp	Leu	Arg	Lys
1715						1720					1725			
Ser	Met	Ile	Ile	Ser	Ala	Thr	Ile	His	Met	Gln	Val	Val	Arg	Lys
1730						1735					1740			
Thr	Thr	Ser	Pro	Glu	Gly	Glu	Val	Val	Pro	Leu	His	Gln	Val	Asp
1745						1750					1755			
Ile	Pro	Met	Glu	Asn	Gly	Val	Gly	Gly	Asn	Gly	Ile	Phe	Leu	Val
1760						1765					1770			
Ala	Pro	Leu	Ile	Ile	Tyr	His	Val	Ile	Asp	Ser	Asn	Ser	Pro	Leu
1775						1780					1785			
Tyr	Asp	Leu	Ala	Pro	Ser	Asp	Leu	His	His	His	Gln	Asp	Leu	Glu
1790						1795					1800			
Ile	Ile	Val	Ile	Leu	Glu	Gly	Val	Val	Glu	Thr	Thr	Gly	Ile	Thr
1805						1810					1815			
Thr	Gln	Ala	Arg	Thr	Ser	Tyr	Leu	Ala	Asp	Glu	Ile	Leu	Trp	Gly
1820						1825					1830			
Gln	Arg	Phe	Val	Pro	Ile	Val	Ala	Glu	Glu	Asp	Gly	Arg	Tyr	Ser
1835						1840					1845			
Val	Asp	Tyr	Ser	Lys	Phe	Gly	Asn	Thr	Ile	Lys	Val	Pro	Thr	Pro
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Leu	Cys	Thr	Ala	Arg	Gln	Leu	Asp	Glu	Asp	Arg	Ser			
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 <213> Homo sapiens

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Met Ala Leu Arg Gly Phe Cys Ser Ala Asp Gly Ser Asp Pro Leu Trp
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Phe Gln Asn Thr Val Leu Val Trp Val Pro Cys Phe Tyr Leu Trp Ala
35          40          45
Cys Phe Pro Phe Tyr Phe Leu Tyr Leu Ser Arg His Asp Arg Gly Tyr
50          55          60
Ile Gln Met Thr Pro Leu Asn Lys Thr Lys Thr Ala Leu Gly Phe Leu
65          70          75          80
Leu Trp Ile Val Cys Trp Ala Asp Leu Phe Tyr Ser Phe Trp Glu Arg
85          90          95
Ser Arg Gly Ile Phe Leu Ala Pro Val Phe Leu Val Ser Pro Thr Leu
100         105         110
Leu Gly Ile Thr Thr Leu Leu Ala Thr Phe Leu Ile Gln Leu Glu Arg
115        120        125
Arg Lys Gly Val Gln Ser Ser Gly Ile Met Leu Thr Phe Trp Leu Val
130        135        140
Ala Leu Val Cys Ala Leu Ala Ile Leu Arg Ser Lys Ile Met Thr Ala
145        150        155        160
Leu Lys Glu Asp Ala Gln Val Asp Leu Phe Arg Asp Ile Thr Phe Tyr
165        170        175
Val Tyr Phe Ser Leu Leu Leu Ile Gln Leu Val Leu Ser Cys Phe Ser
180        185        190
Asp Arg Ser Pro Leu Phe Ser Glu Thr Ile His Asp Pro Asn Pro Cys
195        200        205
Pro Glu Ser Ser Ala Ser Phe Leu Ser Arg Ile Thr Phe Trp Trp Ile
210        215        220
Thr Gly Leu Ile Val Arg Gly Tyr Arg Gln Pro Leu Glu Gly Ser Asp
225        230        235        240
Leu Trp Ser Leu Asn Lys Glu Asp Thr Ser Glu Gln Val Val Pro Val
245        250        255

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Leu Val Lys Asn Trp Lys Lys Glu Cys Ala Lys Thr Arg Lys Gln Pro
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Val Lys Val Val Tyr Ser Ser Lys Asp Pro Ala Gln Pro Lys Glu Ser
275 280 285

Ser Lys Val Asp Ala Asn Glu Glu Val Glu Ala Leu Ile Val Lys Ser
290 295 300

Pro Gln Lys Glu Trp Asn Pro Ser Leu Phe Lys Val Leu Tyr Lys Thr
305 310 315 320

Phe Gly Pro Tyr Phe Leu Met Ser Phe Phe Phe Lys Ala Ile His Asp
325 330 335

Leu Met Met Phe Ser Gly Pro Gln Ile Leu Lys Leu Leu Ile Lys Phe
340 345 350

Val Asn Asp Thr Lys Ala Pro Asp Trp Gln Gly Tyr Phe Tyr Thr Val
355 360 365

Leu Leu Phe Val Thr Ala Cys Leu Gln Thr Leu Val Leu His Gln Tyr
370 375 380

Phe His Ile Cys Phe Val Ser Gly Met Arg Ile Lys Thr Ala Val Ile
385 390 395 400

Gly Ala Val Tyr Arg Lys Ala Leu Val Ile Thr Asn Ser Ala Arg Lys
405 410 415

Ser Ser Thr Val Gly Glu Ile Val Asn Leu Met Ser Val Asp Ala Gln
420 425 430

Arg Phe Met Asp Leu Ala Thr Tyr Ile Asn Met Ile Trp Ser Ala Pro
435 440 445

Leu Gln Val Ile Leu Ala Leu Tyr Leu Leu Trp Leu Asn Leu Gly Pro
450 455 460

Ser Val Leu Ala Gly Val Ala Val Met Val Leu Met Val Pro Val Asn
465 470 475 480

Ala Val Met Ala Met Lys Thr Lys Thr Tyr Gln Val Ala His Met Lys
485 490 495

Ser Lys Asp Asn Arg Ile Lys Leu Met Asn Glu Ile Leu Asn Gly Ile
500 505 510

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Lys Val Leu Lys Leu Tyr Ala Trp Glu Leu Ala Phe Lys Asp Lys Val
515 520 525

Leu Ala Ile Arg Gln Glu Glu Leu Lys Val Leu Lys Lys Ser Ala Tyr
530 535 540

Leu Ser Ala Val Gly Thr Phe Thr Trp Val Cys Thr Pro Phe Leu Val
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Ala Leu Cys Thr Phe Ala Val Tyr Val Thr Ile Asp Glu Asn Asn Ile
565 570 575

Leu Asp Ala Gln Thr Ala Phe Val Ser Leu Ala Leu Phe Asn Ile Leu
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Arg Phe Pro Leu Asn Ile Leu Pro Met Val Ile Ser Ser Ile Val Gln
595 600 605

Ala Ser Val Ser Leu Lys Arg Leu Arg Ile Phe Leu Ser His Glu Glu
610 615 620

Leu Glu Pro Asp Ser Ile Glu Arg Arg Pro Val Lys Asp Gly Gly Gly
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Thr Asn Ser Ile Thr Val Arg Asn Ala Thr Phe Thr Trp Ala Arg Ser
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Asp Pro Pro Thr Leu Asn Gly Ile Thr Phe Ser Ile Pro Glu Gly Ala
660 665 670

Leu Val Ala Val Val Gly Gln Val Gly Cys Gly Lys Ser Ser Leu Leu
675 680 685

Ser Ala Leu Leu Ala Glu Met Asp Lys Val Glu Gly His Val Ala Ile
690 695 700

Lys Gly Ser Val Ala Tyr Val Pro Gln Gln Ala Trp Ile Gln Asn Asp
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Ser Leu Arg Glu Asn Ile Leu Phe Gly Cys Gln Leu Glu Glu Pro Tyr
725 730 735

Tyr Arg Ser Val Ile Gln Ala Cys Ala Leu Leu Pro Asp Leu Glu Ile
740 745 750

Leu Pro Ser Gly Asp Arg Thr Glu Ile Gly Glu Lys Gly Val Asn Leu
755 760 765

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Ser Gly Gly Gln Lys Gln Arg Val Ser Leu Ala Arg Ala Val Tyr Ser
770 775 780

Asn Ala Asp Ile Tyr Leu Phe Asp Asp Pro Leu Ser Ala Val Asp Ala
785 790 795 800

His Val Gly Lys His Ile Phe Glu Asn Val Ile Gly Pro Lys Gly Met
805 810 815

Leu Lys Asn Lys Thr Arg Ile Leu Val Thr His Ser Met Ser Tyr Leu
820 825 830

Pro Gln Val Asp Val Ile Ile Val Met Ser Gly Gly Lys Ile Ser Glu
835 840 845

Met Gly Ser Tyr Gln Glu Leu Leu Ala Arg Asp Gly Ala Phe Ala Glu
850 855 860

Phe Leu Arg Thr Tyr Ala Ser Thr Glu Gln Glu Gln Asp Ala Glu Glu
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Asn Gly Val Thr Gly Val Ser Gly Pro Gly Lys Glu Ala Lys Gln Met
885 890 895

Glu Asn Gly Met Leu Val Thr Asp Ser Ala Gly Lys Gln Leu Gln Arg
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Gln Leu Ser Ser Ser Ser Tyr Ser Gly Asp Ile Ser Arg His His
915 920 925

Asn Ser Thr Ala Glu Leu Gln Lys Ala Glu Ala Lys Lys Glu Glu Thr
930 935 940

Trp Lys Leu Met Glu Ala Asp Lys Ala Gln Thr Gly Gln Val Lys Leu
945 950 955 960

Ser Val Tyr Trp Asp Tyr Met Lys Ala Ile Gly Leu Phe Ile Ser Phe
965 970 975

Leu Ser Ile Phe Leu Phe Met Cys Asn His Val Ser Ala Leu Ala Ser
980 985 990

Asn Tyr Trp Leu Ser Leu Trp Thr Asp Asp Pro Ile Val Asn Gly Thr
995 1000 1005

Gln Glu His Thr Lys Val Arg Leu Ser Val Tyr Gly Ala Leu Gly

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Ile Ser	Gln Gly	Ile Ala	Val	Phe Gly	Tyr Ser	Met	Ala Val	Ser		
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Ile Gly	Gly Ile	Leu Ala	Ser	Arg Cys	Leu His	Val	Asp Leu	Leu		
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His Ser	Ile Leu	Arg Ser	Pro	Met Ser	Phe Phe	Glu	Arg Thr	Pro		
1055			1060			1065				
Ser Gly	Asn Leu	Val Asn	Arg	Phe Ser	Lys Glu	Leu	Asp Thr	Val		
1070			1075			1080				
Asp Ser	Met Ile	Pro Glu	Val	Ile Lys	Met Phe	Met	Gly Ser	Leu		
1085			1090			1095				
Phe Asn	Val Ile	Gly Ala	Cys	Ile Val	Ile Leu	Leu	Ala Thr	Pro		
1100			1105			1110				
Ile Ala	Ala Ile	Ile Ile	Pro	Pro Leu	Gly Leu	Ile	Tyr Phe	Phe		
1115			1120			1125				
Val Gln	Arg Phe	Tyr Val	Ala	Ser Ser	Arg Gln	Leu	Lys Arg	Leu		
1130			1135			1140				
Glu Ser	Val Ser	Arg Ser	Pro	Val Tyr	Ser His	Phe	Asn Glu	Thr		
1145			1150			1155				
Leu Leu	Gly Val	Ser Val	Ile	Arg Ala	Phe Glu	Glu	Gln Glu	Arg		
1160			1165			1170				
Phe Ile	His Gln	Ser Asp	Leu	Lys Val	Asp Glu	Asn	Gln Lys	Ala		
1175			1180			1185				
Tyr Tyr	Pro Ser	Ile Val	Ala	Asn Arg	Trp Leu	Ala	Val Arg	Leu		
1190			1195			1200				
Glu Cys	Val Gly	Asn Cys	Ile	Val Leu	Phe Ala	Ala	Leu Phe	Ala		
1205			1210			1215				
Val Ile	Ser Arg	His Ser	Leu	Ser Ala	Gly Leu	Val	Gly Leu	Ser		
1220			1225			1230				
Val Ser	Tyr Ser	Leu Gln	Val	Thr Thr	Tyr Leu	Asn	Trp Leu	Val		
1235			1240			1245				

Arg Met Ser Ser Glu Met Glu Thr Asn Ile Val Ala Val Glu Arg
 1250 1255 1260
 Leu Lys Glu Tyr Ser Glu Thr Glu Lys Glu Ala Pro Trp Gln Ile
 1265 1270 1275
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 1280 1285 1290
 Glu Phe Arg Asn Tyr Cys Leu Arg Tyr Arg Glu Asp Leu Asp Phe
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 Val Leu Arg His Ile Asn Val Thr Ile Asn Gly Gly Glu Lys Val
 1310 1315 1320
 Gly Ile Val Gly Arg Thr Gly Ala Gly Lys Ser Ser Leu Thr Leu
 1325 1330 1335
 Gly Leu Phe Arg Ile Asn Glu Ser Ala Glu Gly Glu Ile Ile Ile
 1340 1345 1350
 Asp Gly Ile Asn Ile Ala Lys Ile Gly Leu His Asp Leu Arg Phe
 1355 1360 1365
 Lys Ile Thr Ile Ile Pro Gln Asp Pro Val Leu Phe Ser Gly Ser
 1370 1375 1380
 Leu Arg Met Asn Leu Asp Pro Phe Ser Gln Tyr Ser Asp Glu Glu
 1385 1390 1395
 Val Trp Thr Ser Leu Glu Leu Ala His Leu Lys Asp Phe Val Ser
 1400 1405 1410
 Ala Leu Pro Asp Lys Leu Asp His Glu Cys Ala Glu Gly Gly Glu
 1415 1420 1425
 Asn Leu Ser Val Gly Gln Arg Gln Leu Val Cys Leu Ala Arg Ala
 1430 1435 1440
 Leu Leu Arg Lys Thr Lys Ile Leu Val Leu Asp Glu Ala Thr Ala
 1445 1450 1455
 Ala Val Asp Leu Glu Thr Asp Asp Leu Ile Gln Ser Thr Ile Arg
 1460 1465 1470
 Thr Gln Phe Glu Asp Cys Thr Val Leu Thr Ile Ala His Arg Leu
 1475 1480 1485

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Asn	Thr	Ile	Met	Asp	Tyr	Thr	Arg	Val	Ile	Val	Leu	Asp	Lys	Gly
	1490					1495					1500			
Glu	Ile	Gln	Glu	Tyr	Gly	Ala	Pro	Ser	Asp	Leu	Leu	Gln	Gln	Arg
	1505					1510					1515			
Gly	Leu	Phe	Tyr	Ser	Met	Ala	Lys	Asp	Ala	Gly	Leu	Val	Gly	Gly
	1520					1525					1530			
Gly	Gly	Gly	Gly	Met	Leu	Ser	Arg	Lys	Gly	Ile	Ile	Pro	Glu	Glu
	1535					1540					1545			
Tyr	Val	Leu	Thr	Arg	Leu	Ala	Glu	Asp	Pro	Ala	Glu	Pro	Arg	Tyr
	1550					1555					1560			
Arg	Thr	Arg	Glu	Arg	Arg	Ala	Arg	Phe	Val	Ser	Lys	Lys	Gly	Asn
	1565					1570					1575			
Cys	Asn	Val	Ala	His	Lys	Asn	Ile	Arg	Glu	Gln	Gly	Arg	Phe	Leu
	1580					1585					1590			
Gln	Asp	Val	Phe	Thr	Thr	Leu	Val	Asp	Leu	Lys	Trp	Pro	His	Thr
	1595					1600					1605			
Leu	Leu	Ile	Phe	Thr	Met	Ser	Phe	Leu	Cys	Ser	Trp	Leu	Leu	Phe
	1610					1615					1620			
Ala	Met	Val	Trp	Trp	Leu	Ile	Ala	Phe	Ala	His	Gly	Asp	Leu	Ala
	1625					1630					1635			
Pro	Gly	Glu	Gly	Thr	Asn	Val	Pro	Cys	Val	Thr	Ser	Ile	His	Ser
	1640					1645					1650			
Phe	Ser	Ser	Ala	Phe	Leu	Phe	Ser	Ile	Glu	Val	Gln	Val	Thr	Ile
	1655					1660					1665			
Gly	Phe	Gly	Gly	Arg	Met	Val	Thr	Glu	Glu	Cys	Pro	Leu	Ala	Ile
	1670					1675					1680			
Leu	Ile	Leu	Ile	Val	Gln	Asn	Ile	Val	Gly	Leu	Met	Ile	Asn	Ala
	1685					1690					1695			
Ile	Met	Leu	Gly	Cys	Ile	Phe	Met	Lys	Thr	Ala	Gln	Ala	His	Arg
	1700					1705					1710			
Arg	Ala	Glu	Thr	Leu	Ile	Phe	Ser	Lys	His	Ala	Val	Ile	Thr	Leu
	1715					1720					1725			

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Arg His Gly Arg Leu Cys Phe Met Leu Arg Val Gly Asp Leu Arg
1730 1735 1740

Lys Ser Met Ile Ile Ser Ala Thr Ile His Met Gln Val Val Arg
1745 1750 1755

Lys Thr Thr Ser Pro Glu Gly Glu Val Val Pro Leu His Gln Val
1760 1765 1770

Asp Ile Pro Met Glu Asn Gly Val Gly Gly Asn Gly Ile Phe Leu
1775 1780 1785

Val Ala Pro Leu Ile Ile Tyr His Val Ile Asp Ser Asn Ser Pro
1790 1795 1800

Leu Tyr Asp Leu Ala Pro Ser Asp Leu His His His Gln Asp Leu
1805 1810 1815

Glu Ile Ile Val Ile Leu Glu Gly Val Val Glu Thr Thr Gly Ile
1820 1825 1830

Thr Thr Gln Ala Arg Thr Ser Tyr Leu Ala Asp Glu Ile Leu Trp
1835 1840 1845

Gly Gln Arg Phe Val Pro Ile Val Ala Glu Glu Asp Gly Arg Tyr
1850 1855 1860

Ser Val Asp Tyr Ser Lys Phe Gly Asn Thr Ile Lys Val Pro Thr
1865 1870 1875

Pro Leu Cys Thr Ala Arg Gln Leu Asp Glu Asp Arg Ser Leu Leu
1880 1885 1890

Asp Ala Leu Thr Leu Ala Ser Ser Arg Gly Pro Leu Arg Ala Ala
1895 1900 1905

Ser Val Ala Val Ala Lys Ala Lys Pro Lys Phe Ser Ile Ser Pro
1910 1915 1920

Asp Ser Leu Ser
1925

<210> 7
<211> 1961
<212> PRT
<213> Rattus rattus

<400> 7

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His Gly Val Leu Gln Asn Pro Cys Phe Val Asp Ala Leu Asn Leu Val
20 25 30
Pro His Val Phe Leu Leu Phe Ile Thr Phe Pro Ile Leu Phe Ile Gly
35 40 45
Trp Gly Ser Gln Ser Ser Lys Val Gln Ile His His Asn Thr Trp Leu
50 55 60
His Phe Pro Gly His Asn Leu Arg Trp Ile Leu Thr Phe Ala Leu Leu
65 70 75 80
Phe Val His Val Cys Glu Ile Ala Glu Gly Ile Val Ser Asp Ser Gln
85 90 95
Arg Ala Ser Arg His Leu His Leu Phe Met Pro Ala Val Met Gly Phe
100 105 110
Val Ala Thr Thr Thr Ser Ile Val Tyr Tyr His Asn Ile Glu Thr Ser
115 120 125
Asn Phe Pro Lys Leu Leu Leu Ala Leu Phe Leu Tyr Trp Val Met Ala
130 135 140
Phe Ile Thr Lys Thr Ile Lys Leu Val Lys Tyr Trp Gln Leu Gly Trp
145 150 155 160
Gly Met Ser Asp Leu Arg Phe Cys Ile Thr Gly Val Met Val Ile Leu
165 170 175
Asn Gly Leu Leu Met Ala Val Glu Ile Asn Val Ile Arg Val Arg Arg
180 185 190
Tyr Val Phe Phe Met Asn Pro Gln Lys Val Lys Pro Pro Glu Asp Leu
195 200 205
Gln Asp Leu Gly Val Arg Phe Leu Gln Pro Phe Val Asn Leu Leu Ser
210 215 220
Lys Ala Thr Tyr Trp Trp Met Asn Thr Leu Ile Ile Ser Ala His Arg
225 230 235 240
Lys Pro Ile Asp Leu Lys Ala Ile Gly Lys Leu Pro Ile Ala Met Arg
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245

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250

255

Ala Val Thr Asn Tyr Val Cys Leu Lys Glu Ala Tyr Glu Glu Gln Lys
260 265 270

Lys Lys Ala Ala Asp His Pro Asn Arg Thr Pro Ser Ile Trp Leu Ala
275 280 285

Met Tyr Arg Ala Phe Gly Arg Pro Ile Leu Leu Ser Ser Thr Phe Arg
290 295 300

Tyr Leu Ala Asp Leu Leu Gly Phe Ala Gly Pro Leu Cys Ile Ser Gly
305 310 315 320

Ile Val Gln Arg Val Asn Glu Pro Lys Asn Asn Thr Thr Arg Phe Ser
325 330 335

Glu Thr Leu Ser Ser Lys Glu Phe Leu Glu Asn Ala His Val Leu Ala
340 345 350

Val Leu Leu Phe Leu Ala Leu Ile Leu Gln Arg Thr Phe Leu Gln Ala
355 360 365

Ser Tyr Tyr Val Thr Ile Glu Thr Gly Ile Asn Leu Arg Gly Ala Leu
370 375 380

Leu Ala Met Ile Tyr Asn Lys Ile Leu Arg Leu Ser Thr Ser Asn Leu
385 390 395 400

Ser Met Gly Glu Met Thr Leu Gly Gln Ile Asn Asn Leu Val Ala Ile
405 410 415

Glu Thr Asn Gln Leu Met Trp Phe Leu Phe Leu Cys Pro Asn Leu Trp
420 425 430

Ala Met Pro Val Gln Ile Ile Met Gly Val Ile Leu Leu Tyr Asn Leu
435 440 445

Leu Gly Ser Ser Ala Leu Val Gly Ala Ala Val Ile Val Leu Leu Ala
450 455 460

Pro Ile Gln Tyr Phe Ile Ala Thr Lys Leu Ala Glu Ala Gln Lys Ser
465 470 475 480

Thr Leu Asp Tyr Ser Thr Glu Arg Leu Lys Lys Thr Asn Glu Ile Leu
485 490 495

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Lys Gly Ile Lys Leu Leu Lys Leu Tyr Ala Trp Glu His Ile Phe Cys
 500 505 510

Lys Ser Val Glu Glu Thr Arg Met Lys Glu Leu Ser Ser Leu Lys Thr
 515 520 525

Phe Ala Leu Tyr Thr Ser Leu Ser Ile Phe Met Asn Ala Ala Ile Pro
 530 535 540

Ile Ala Ala Val Leu Ala Thr Phe Val Thr His Ala Tyr Ala Ser Gly
 545 550 555 560

Asn Asn Leu Lys Pro Ala Glu Ala Phe Ala Ser Leu Ser Leu Phe His
 565 570 575

Ile Leu Val Thr Pro Leu Phe Leu Leu Ser Thr Val Val Arg Phe Ala
 580 585 590

Val Lys Ala Ile Ile Ser Val Gln Lys Leu Asn Glu Phe Leu Leu Ser
 595 600 605

Asp Glu Ile Gly Glu Asp Ser Trp Arg Thr Gly Glu Gly Thr Leu Pro
 610 615 620

Phe Glu Ser Cys Lys Lys His Thr Gly Val Gln Ser Lys Pro Ile Asn
 625 630 635 640

Arg Lys Gln Pro Gly Arg Tyr His Leu Asp Asn Tyr Glu Gln Ala Arg
 645 650 655

Arg Leu Arg Pro Ala Glu Thr Glu Asp Val Ala Ile Lys Val Thr Asn
 660 665 670

Gly Tyr Phe Ser Trp Gly Ser Gly Leu Ala Thr Leu Ser Asn Ile Asp
 675 680 685

Ile Arg Ile Pro Thr Gly Gln Leu Thr Met Ile Val Gly Gln Val Gly
 690 695 700

Cys Gly Lys Ser Ser Leu Leu Leu Ala Ile Leu Gly Glu Met Gln Thr
 705 710 715 720

Leu Glu Gly Lys Val Tyr Trp Asn Asn Val Asn Glu Ser Glu Pro Ser
 725 730 735

Phe Glu Ala Thr Arg Ser Arg Ser Arg Tyr Ser Val Ala Tyr Ala Ala
 740 745 750

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Gln Lys Pro Trp Leu Leu Asn Ala Thr Val Glu Glu Asn Ile Thr Phe
755 760 765

Gly Ser Ser Phe Asn Arg Gln Arg Tyr Lys Ala Val Thr Asp Ala Cys
770 775 780

Ser Leu Gln Pro Asp Ile Asp Leu Leu Pro Phe Gly Asp Gln Thr Glu
785 790 795 800

Ile Gly Glu Arg Gly Ile Asn Leu Ser Gly Gly Gln Arg Gln Arg Ile
805 810 815

Cys Val Ala Arg Ala Leu Tyr Gln Asn Thr Asn Ile Val Phe Leu Asp
820 825 830

Asp Pro Phe Ser Ala Leu Asp Ile His Leu Ser Asp His Leu Met Gln
835 840 845

Glu Gly Ile Leu Lys Phe Leu Gln Asp Asp Lys Arg Thr Val Val Leu
850 855 860

Val Thr His Lys Leu Gln Tyr Leu Thr His Ala Asp Trp Ile Ile Ala
865 870 875 880

Met Lys Asp Gly Ser Val Leu Arg Glu Gly Thr Leu Lys Asp Ile Gln
885 890 895

Thr Lys Asp Val Glu Leu Tyr Glu His Trp Lys Thr Leu Met Asn Arg
900 905 910

Gln Asp Gln Glu Leu Glu Lys Asp Met Glu Ala Asp Gln Thr Thr Leu
915 920 925

Glu Arg Lys Thr Leu Arg Arg Ala Met Tyr Ser Arg Glu Ala Lys Ala
930 935 940

Gln Met Glu Asp Glu Asp Glu Glu Glu Glu Glu Glu Asp Glu Asp
945 950 955 960

Asp Asn Met Ser Thr Val Met Arg Leu Arg Thr Lys Met Pro Trp Lys
965 970 975

Thr Cys Trp Trp Tyr Leu Thr Ser Gly Gly Phe Phe Leu Leu Phe Leu
980 985 990

Met Ile Phe Ser Lys Leu Leu Lys His Ser Val Ile Val Ala Ile Asp
995 1000 1005

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Tyr	Trp	Leu	Ala	Thr	Trp	Thr	Ser	Glu	Tyr	Ser	Ile	Asn	Asp	Pro
1010						1015					1020			
Gly	Lys	Ala	Asp	Gln	Thr	Phe	Tyr	Val	Ala	Gly	Phe	Ser	Ile	Leu
1025						1030					1035			
Cys	Gly	Ala	Gly	Ile	Phe	Leu	Cys	Leu	Val	Thr	Ser	Leu	Thr	Val
1040						1045					1050			
Glu	Trp	Met	Gly	Leu	Thr	Ala	Ala	Lys	Asn	Leu	His	His	Asn	Leu
1055						1060					1065			
Leu	Asn	Lys	Ile	Ile	Leu	Gly	Pro	Ile	Arg	Phe	Phe	Asp	Thr	Thr
1070						1075					1080			
Pro	Leu	Gly	Leu	Ile	Leu	Asn	Arg	Phe	Ser	Ala	Asp	Thr	Asn	Ile
1085						1090					1095			
Ile	Asp	Gln	His	Ile	Pro	Pro	Thr	Leu	Glu	Ser	Leu	Thr	Arg	Ser
1100						1105					1110			
Thr	Leu	Leu	Cys	Leu	Ser	Ala	Ile	Gly	Met	Ile	Ser	Tyr	Ala	Thr
1115						1120					1125			
Pro	Val	Phe	Leu	Ile	Ala	Leu	Ala	Pro	Leu	Gly	Val	Ala	Phe	Tyr
1130						1135					1140			
Phe	Ile	Gln	Lys	Tyr	Phe	Arg	Val	Ala	Ser	Lys	Asp	Leu	Gln	Glu
1145						1150					1155			
Leu	Asp	Asp	Ser	Thr	Gln	Leu	Pro	Leu	Leu	Cys	His	Phe	Ser	Glu
1160						1165					1170			
Thr	Ala	Glu	Gly	Leu	Thr	Thr	Ile	Arg	Ala	Phe	Arg	His	Glu	Thr
1175						1180					1185			
Arg	Phe	Lys	Gln	Arg	Met	Leu	Glu	Leu	Thr	Asp	Thr	Asn	Asn	Ile
1190						1195					1200			
Ala	Tyr	Leu	Phe	Leu	Ser	Ala	Ala	Asn	Arg	Trp	Leu	Glu	Val	Arg
1205						1210					1215			
Thr	Asp	Tyr	Leu	Gly	Ala	Cys	Ile	Val	Leu	Thr	Ala	Ser	Ile	Ala
1220						1225					1230			
Ser	Ile	Ser	Gly	Ser	Ser	Asn	Ser	Gly	Leu	Val	Gly	Leu	Gly	Leu

1235

1240

Leu Tyr 1250	Ala Leu Thr Ile	Thr 1255	Asn Tyr Leu Asn	Trp 1260	Val Val Arg
Asn Leu 1265	Ala Asp Leu Glu	Val 1270	Gln Met Gly Ala	Val 1275	Lys Lys Val
Asn Ser 1280	Phe Leu Thr Met	Glu 1285	Ser Glu Asn Tyr	Glu 1290	Gly Thr Met
Asp Pro 1295	Ser Gln Val Pro	Glu 1300	His Trp Pro Gln	Glu 1305	Gly Glu Ile
Lys Ile 1310	His Asp Leu Cys	Val 1315	Arg Tyr Glu Asn	Asn 1320	Leu Lys Pro
Val Leu 1325	Lys His Val Lys	Ala 1330	Tyr Ile Lys Pro	Gly 1335	Gln Lys Val
Gly Ile 1340	Cys Gly Arg Thr	Gly 1345	Ser Gly Lys Ser	Ser 1350	Leu Ser Leu
Ala Phe 1355	Phe Arg Met Val	Asp 1360	Ile Phe Asp Gly	Lys 1365	Ile Val Ile
Asp Gly 1370	Ile Asp Ile Ser	Lys 1375	Leu Pro Leu His	Thr 1380	Leu Arg Ser
Arg Leu 1385	Ser Ile Ile Leu	Gln 1390	Asp Pro Ile Leu	Phe 1395	Ser Gly Ser
Ile Arg 1400	Phe Asn Leu Asp	Pro 1405	Glu Cys Lys Cys	Thr 1410	Asp Asp Arg
Leu Trp 1415	Glu Ala Leu Glu	Ile 1420	Ala Gln Leu Lys	Asn 1425	Met Val Lys
Ser Leu 1430	Pro Gly Gly Leu	Asp 1435	Ala Thr Val Thr	Glu 1440	Gly Gly Glu
Asn Phe 1445	Ser Val Gly Gln	Arg 1450	Gln Leu Phe Cys	Leu 1455	Ala Arg Ala
Phe Val 1460	Arg Lys Ser Ser	Ile 1465	Leu Ile Met Asp	Glu 1470	Ala Thr Ala

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Ser	Ile	Asp	Met	Ala	Thr	Glu	Asn	Ile	Leu	Gln	Lys	Val	Val	Met
	1475					1480					1485			
Thr	Ala	Phe	Ala	Asp	Arg	Thr	Val	Val	Thr	Ile	Ala	His	Arg	Val
	1490					1495					1500			
Ser	Ser	Ile	Met	Asp	Ala	Gly	Leu	Val	Leu	Val	Phe	Ser	Glu	Gly
	1505					1510					1515			
Ile	Leu	Val	Glu	Cys	Asp	Thr	Gly	Pro	Asn	Leu	Leu	Gln	His	Lys
	1520					1525					1530			
Asn	Gly	Leu	Phe	Ser	Thr	Leu	Val	Met	Thr	Asn	Lys	Gly	Gly	Gly
	1535					1540					1545			
Gly	Gly	Gly	Met	Leu	Ser	Arg	Lys	Gly	Ile	Ile	Pro	Glu	Glu	Tyr
	1550					1555					1560			
Val	Leu	Thr	Arg	Leu	Ala	Glu	Asp	Pro	Ala	Glu	Pro	Arg	Tyr	Arg
	1565					1570					1575			
Thr	Arg	Glu	Arg	Arg	Ala	Arg	Phe	Val	Ser	Lys	Lys	Gly	Asn	Cys
	1580					1585					1590			
Asn	Val	Ala	His	Lys	Asn	Ile	Arg	Glu	Gln	Gly	Arg	Phe	Leu	Gln
	1595					1600					1605			
Asp	Val	Phe	Thr	Thr	Leu	Val	Asp	Leu	Lys	Trp	Pro	His	Thr	Leu
	1610					1615					1620			
Leu	Ile	Phe	Thr	Met	Ser	Phe	Leu	Cys	Ser	Trp	Leu	Leu	Phe	Ala
	1625					1630					1635			
Met	Val	Trp	Trp	Leu	Ile	Ala	Phe	Ala	His	Gly	Asp	Leu	Tyr	Ala
	1640					1645					1650			
Tyr	Met	Glu	Lys	Gly	Ile	Thr	Asp	Leu	Ala	Pro	Tyr	Pro	Tyr	Asp
	1655					1660					1665			
Val	Pro	Asp	Tyr	Ala	Gly	Glu	Gly	Thr	Asn	Val	Pro	Cys	Val	Thr
	1670					1675					1680			
Ser	Ile	His	Ser	Phe	Ser	Ser	Ala	Phe	Leu	Phe	Ser	Ile	Glu	Val
	1685					1690					1695			
Gln	Val	Thr	Ile	Gly	Phe	Gly	Gly	Arg	Met	Val	Thr	Glu	Glu	Cys
	1700					1705					1710			

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Pro Leu Ala Ile Leu Ile Leu Ile Val Gln Asn Ile Val Gly Leu
 1715 1720 1725
 Met Ile Asn Ala Ile Met Leu Gly Cys Ile Phe Met Lys Thr Ala
 1730 1735 1740
 Gln Ala His Arg Arg Ala Glu Thr Leu Ile Phe Ser Lys His Ala
 1745 1750 1755
 Val Ile Thr Leu Arg His Gly Arg Leu Cys Phe Met Leu Arg Val
 1760 1765 1770
 Gly Asp Leu Arg Lys Ser Met Ile Ile Ser Ala Thr Ile His Met
 1775 1780 1785
 Gln Val Val Arg Lys Thr Thr Ser Pro Glu Gly Glu Val Val Pro
 1790 1795 1800
 Leu His Gln Val Asp Ile Pro Met Glu Asn Gly Val Gly Gly Asn
 1805 1810 1815
 Gly Ile Phe Leu Val Ala Pro Leu Ile Ile Tyr His Val Ile Asp
 1820 1825 1830
 Ser Asn Ser Pro Leu Tyr Asp Leu Ala Pro Ser Asp Leu His His
 1835 1840 1845
 His Gln Asp Leu Glu Ile Ile Val Ile Leu Glu Gly Val Val Glu
 1850 1855 1860
 Thr Thr Gly Ile Thr Thr Gln Ala Arg Thr Ser Tyr Leu Ala Asp
 1865 1870 1875
 Glu Ile Leu Trp Gly Gln Arg Phe Val Pro Ile Val Ala Glu Glu
 1880 1885 1890
 Asp Gly Arg Tyr Ser Val Asp Tyr Ser Lys Phe Gly Asn Thr Ile
 1895 1900 1905
 Lys Val Pro Thr Pro Leu Cys Thr Ala Arg Gln Leu Asp Glu Asp
 1910 1915 1920
 Arg Ser Leu Leu Asp Ala Leu Thr Leu Ala Ser Ser Arg Gly Pro
 1925 1930 1935
 Leu Arg Lys Arg Ser Val Ala Val Ala Lys Ala Lys Pro Lys Phe
 1940 1945 1950

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Ser Ile Ser Pro Asp Ser Leu Ser
1955 1960

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Phe Gln Asn Thr Val Leu Val Trp Val Pro Cys Phe Tyr Leu Trp Ala
35 40 45

Cys Phe Pro Phe Tyr Phe Leu Tyr Leu Ser Arg His Asp Arg Gly Tyr
50 55 60

Ile Gln Met Thr Pro Leu Asn Lys Thr Lys Thr Ala Leu Gly Phe Leu
65 70 75 80

Leu Trp Ile Val Cys Trp Ala Asp Leu Phe Tyr Ser Phe Trp Glu Arg
85 90 95

Ser Arg Gly Ile Phe Leu Ala Pro Val Phe Leu Val Ser Pro Thr Leu
100 105 110

Leu Gly Ile Thr Thr Leu Leu Ala Thr Phe Leu Ile Gln Leu Glu Arg
115 120 125

Arg Lys Gly Val Gln Ser Ser Gly Ile Met Leu Thr Phe Trp Leu Val
130 135 140

Ala Leu Val Cys Ala Leu Ala Ile Leu Arg Ser Lys Ile Met Thr Ala
145 150 155 160

Leu Lys Glu Asp Ala Gln Val Asp Leu Phe Arg Asp Ile Thr Phe Tyr
165 170 175

Val Tyr Phe Ser Leu Leu Leu Ile Gln Leu Val Leu Ser Cys Phe Ser
180 185 190

Asp Arg Ser Pro Leu Phe Ser Glu Thr Ile His Asp Pro Asn Pro Cys
195 200 205

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Pro Glu Ser Ser Ala Ser Phe Leu Ser Arg Ile Thr Phe Trp Trp Ile
210 215 220

Thr Gly Leu Ile Val Arg Gly Tyr Arg Gln Pro Leu Glu Gly Ser Asp
225 230 235 240

Leu Trp Ser Leu Asn Lys Glu Asp Thr Ser Glu Gln Val Val Pro Val
245 250 255

Leu Val Lys Asn Trp Lys Lys Glu Cys Ala Lys Thr Arg Lys Gln Pro
260 265 270

Val Lys Val Val Tyr Ser Ser Lys Asp Pro Ala Gln Pro Lys Glu Ser
275 280 285

Ser Lys Val Asp Ala Asn Glu Glu Val Glu Ala Leu Ile Val Lys Ser
290 295 300

Pro Gln Lys Glu Trp Asn Pro Ser Leu Phe Lys Val Leu Tyr Lys Thr
305 310 315 320

Phe Gly Pro Tyr Phe Leu Met Ser Phe Phe Phe Lys Ala Ile His Asp
325 330 335

Leu Met Met Phe Ser Gly Pro Gln Ile Leu Lys Leu Leu Ile Lys Phe
340 345 350

Val Asn Asp Thr Lys Ala Pro Asp Trp Gln Gly Tyr Phe Tyr Thr Val
355 360 365

Leu Leu Phe Val Thr Ala Cys Leu Gln Thr Leu Val Leu His Gln Tyr
370 375 380

Phe His Ile Cys Phe Val Ser Gly Met Arg Ile Lys Thr Ala Val Ile
385 390 395 400

Gly Ala Val Tyr Arg Lys Ala Leu Val Ile Thr Asn Ser Ala Arg Lys
405 410 415

Ser Ser Thr Val Gly Glu Ile Val Asn Leu Met Ser Val Asp Ala Gln
420 425 430

Arg Phe Met Asp Leu Ala Thr Tyr Ile Asn Met Ile Trp Ser Ala Pro
435 440 445

Leu Gln Val Ile Leu Ala Leu Tyr Leu Leu Trp Leu Asn Leu Gly Pro

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460

450

455

Ser Val Leu Ala Gly Val Ala Val Met Val Leu Met Val Pro Val Asn
465 470 475 480

Ala Val Met Ala Met Lys Thr Lys Thr Tyr Gln Val Ala His Met Lys
485 490 495

Ser Lys Asp Asn Arg Ile Lys Leu Met Asn Glu Ile Leu Asn Gly Ile
500 505 510

Lys Val Leu Lys Leu Tyr Ala Trp Glu Leu Ala Phe Lys Asp Lys Val
515 520 525

Leu Ala Ile Arg Gln Glu Glu Leu Lys Val Leu Lys Lys Ser Ala Tyr
530 535 540

Leu Ser Ala Val Gly Thr Phe Thr Trp Val Cys Thr Pro Phe Leu Val
545 550 555 560

Ala Leu Cys Thr Phe Ala Val Tyr Val Thr Ile Asp Glu Asn Asn Ile
565 570 575

Leu Asp Ala Gln Thr Ala Phe Val Ser Leu Ala Leu Phe Asn Ile Leu
580 585 590

Arg Phe Pro Leu Asn Ile Leu Pro Met Val Ile Ser Ser Ile Val Gln
595 600 605

Ala Ser Val Ser Leu Lys Arg Leu Arg Ile Phe Leu Ser His Glu Glu
610 615 620

Leu Glu Pro Asp Ser Ile Glu Arg Arg Pro Val Lys Asp Gly Gly Gly
625 630 635 640

Thr Asn Ser Ile Thr Val Arg Asn Ala Thr Phe Thr Trp Ala Arg Ser
645 650 655

Asp Pro Pro Thr Leu Asn Gly Ile Thr Phe Ser Ile Pro Glu Gly Ala
660 665 670

Leu Val Ala Val Val Gly Gln Val Gly Cys Gly Lys Ser Ser Leu Leu
675 680 685

Ser Ala Leu Leu Ala Glu Met Asp Lys Val Glu Gly His Val Ala Ile
690 695 700

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Lys Gly Ser Val Ala Tyr Val Pro Gln Gln Ala Trp Ile Gln Asn Asp
 705 710 715 720
 Ser Leu Arg Glu Asn Ile Leu Phe Gly Cys Gln Leu Glu Glu Pro Tyr
 725 730 735
 Tyr Arg Ser Val Ile Gln Ala Cys Ala Leu Leu Pro Asp Leu Glu Ile
 740 745 750
 Leu Pro Ser Gly Asp Arg Thr Glu Ile Gly Glu Lys Gly Val Asn Leu
 755 760 765
 Ser Gly Gly Gln Lys Gln Arg Val Ser Leu Ala Arg Ala Val Tyr Ser
 770 775 780
 Asn Ala Asp Ile Tyr Leu Phe Asp Asp Pro Leu Ser Ala Val Asp Ala
 785 790 795 800
 His Val Gly Lys His Ile Phe Glu Asn Val Ile Gly Pro Lys Gly Met
 805 810 815
 Leu Lys Asn Lys Thr Arg Ile Leu Val Thr His Ser Met Ser Tyr Leu
 820 825 830
 Pro Gln Val Asp Val Ile Ile Val Met Ser Gly Gly Lys Ile Ser Glu
 835 840 845
 Met Gly Ser Tyr Gln Glu Leu Leu Ala Arg Asp Gly Ala Phe Ala Glu
 850 855 860
 Phe Leu Arg Thr Tyr Ala Ser Thr Glu Gln Glu Gln Asp Ala Glu Glu
 865 870 875 880
 Asn Gly Val Thr Gly Val Ser Gly Pro Gly Lys Glu Ala Lys Gln Met
 885 890 895
 Glu Asn Gly Met Leu Val Thr Asp Ser Ala Gly Lys Gln Leu Gln Arg
 900 905 910
 Gln Leu Ser Ser Ser Ser Ser Tyr Ser Gly Asp Ile Ser Arg His His
 915 920 925
 Asn Ser Thr Ala Glu Leu Gln Lys Ala Glu Ala Lys Lys Glu Glu Thr
 930 935 940
 Trp Lys Leu Met Glu Ala Asp Lys Ala Gln Thr Gly Gln Val Lys Leu
 945 950 955 960

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Ser Val Tyr Trp Asp Tyr Met Lys Ala Ile Gly Leu Phe Ile Ser Phe
965 970 975

Leu Ser Ile Phe Leu Phe Met Cys Asn His Val Ser Ala Leu Ala Ser
980 985 990

Asn Tyr Trp Leu Ser Leu Trp Thr Asp Asp Pro Ile Val Asn Gly Thr
995 1000 1005

Gln Glu His Thr Lys Val Arg Leu Ser Val Tyr Gly Ala Leu Gly
1010 1015 1020

Ile Ser Gln Gly Ile Ala Val Phe Gly Tyr Ser Met Ala Val Ser
1025 1030 1035

Ile Gly Gly Ile Leu Ala Ser Arg Cys Leu His Val Asp Leu Leu
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His Ser Ile Leu Arg Ser Pro Met Ser Phe Phe Glu Arg Thr Pro
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Ser Gly Asn Leu Val Asn Arg Phe Ser Lys Glu Leu Asp Thr Val
1070 1075 1080

Asp Ser Met Ile Pro Glu Val Ile Lys Met Phe Met Gly Ser Leu
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Phe Asn Val Ile Gly Ala Cys Ile Val Ile Leu Leu Ala Thr Pro
1100 1105 1110

Ile Ala Ala Ile Ile Ile Pro Pro Leu Gly Leu Ile Tyr Phe Phe
1115 1120 1125

Val Gln Arg Phe Tyr Val Ala Ser Ser Arg Gln Leu Lys Arg Leu
1130 1135 1140

Glu Ser Val Ser Arg Ser Pro Val Tyr Ser His Phe Asn Glu Thr
1145 1150 1155

Leu Leu Gly Val Ser Val Ile Arg Ala Phe Glu Glu Gln Glu Arg
1160 1165 1170

Phe Ile His Gln Ser Asp Leu Lys Val Asp Glu Asn Gln Lys Ala
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Tyr Tyr Pro Ser Ile Val Ala Asn Arg Trp Leu Ala Val Arg Leu
1190 1195 1200

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Glu Cys Val Gly Asn Cys Ile Val Leu Phe Ala Ala Leu Phe Ala
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 Val Ile Ser Arg His Ser Leu Ser Ala Gly Leu Val Gly Leu Ser
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 Glu Phe Arg Asn Tyr Cys Leu Arg Tyr Arg Glu Asp Leu Asp Phe
 1295 1300 1305
 Val Leu Arg His Ile Asn Val Thr Ile Asn Gly Gly Glu Lys Val
 1310 1315 1320
 Gly Ile Val Gly Arg Thr Gly Ala Gly Lys Ser Ser Leu Thr Leu
 1325 1330 1335
 Gly Leu Phe Arg Ile Asn Glu Ser Ala Glu Gly Glu Ile Ile Ile
 1340 1345 1350
 Asp Gly Ile Asn Ile Ala Lys Ile Gly Leu His Asp Leu Arg Phe
 1355 1360 1365
 Lys Ile Thr Ile Ile Pro Gln Asp Pro Val Leu Phe Ser Gly Ser
 1370 1375 1380
 Leu Arg Met Asn Leu Asp Pro Phe Ser Gln Tyr Ser Asp Glu Glu
 1385 1390 1395
 Val Trp Thr Ser Leu Glu Leu Ala His Leu Lys Asp Phe Val Ser
 1400 1405 1410
 Ala Leu Pro Asp Lys Leu Asp His Glu Cys Ala Glu Gly Gly Glu
 1415 1420 1425
 Asn Leu Ser Val Gly Gln Arg Gln Leu Val Cys Leu Ala Arg Ala
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1430

1435

Leu 1445	Leu	Arg	Lys	Thr	Lys	Ile 1450	Leu	Val	Leu	Asp	Glu 1455	Ala	Thr	Ala
Ala 1460	Val	Asp	Leu	Glu	Thr	Asp 1465	Asp	Leu	Ile	Gln	Ser 1470	Thr	Ile	Arg
Thr 1475	Gln	Phe	Glu	Asp	Cys	Thr 1480	Val	Leu	Thr	Ile	Ala 1485	His	Arg	Leu
Asn 1490	Thr	Ile	Met	Asp	Tyr	Thr 1495	Arg	Val	Ile	Val	Leu 1500	Asp	Lys	Gly
Glu 1505	Ile	Gln	Glu	Tyr	Gly	Ala 1510	Pro	Ser	Asp	Leu	Leu 1515	Gln	Gln	Arg
Gly 1520	Leu	Phe	Tyr	Ser	Met	Ala 1525	Lys	Asp	Ala	Gly	Leu 1530	Val	Gly	Gly
Gly 1535	Gly	Gly	Gly	Met	Leu	Ser 1540	Arg	Lys	Gly	Ile	Ile 1545	Pro	Glu	Glu
Tyr 1550	Val	Leu	Thr	Arg	Leu	Ala 1555	Glu	Asp	Pro	Ala	Glu 1560	Pro	Arg	Tyr
Arg 1565	Thr	Arg	Glu	Arg	Arg	Ala 1570	Arg	Phe	Val	Ser	Lys 1575	Lys	Gly	Asn
Cys 1580	Asn	Val	Ala	His	Lys	Asn 1585	Ile	Arg	Glu	Gln	Gly 1590	Arg	Phe	Leu
Gln 1595	Asp	Val	Phe	Thr	Thr	Leu 1600	Val	Asp	Leu	Lys	Trp 1605	Pro	His	Thr
Leu 1610	Leu	Ile	Phe	Thr	Met	Ser 1615	Phe	Leu	Cys	Ser	Trp 1620	Leu	Leu	Phe
Ala 1625	Met	Val	Trp	Trp	Leu	Ile 1630	Ala	Phe	Ala	His	Gly 1635	Asp	Leu	Tyr
Ala 1640	Tyr	Met	Glu	Lys	Gly	Ile 1645	Thr	Asp	Leu	Ala	Pro 1650	Tyr	Pro	Tyr
Asp 1655	Val	Pro	Asp	Tyr	Ala	Gly 1660	Glu	Gly	Thr	Asn	Val 1665	Pro	Cys	Val

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Thr	Ser	Ile	His	Ser	Phe	Ser	Ser	Ala	Phe	Leu	Phe	Ser	Ile	Glu
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Val	Gln	Val	Thr	Ile	Gly	Phe	Gly	Gly	Arg	Met	Val	Thr	Glu	Glu
	1685					1690					1695			
Cys	Pro	Leu	Ala	Ile	Leu	Ile	Leu	Ile	Val	Gln	Asn	Ile	Val	Gly
	1700					1705					1710			
Leu	Met	Ile	Asn	Ala	Ile	Met	Leu	Gly	Cys	Ile	Phe	Met	Lys	Thr
	1715					1720					1725			
Ala	Gln	Ala	His	Arg	Arg	Ala	Glu	Thr	Leu	Ile	Phe	Ser	Lys	His
	1730					1735					1740			
Ala	Val	Ile	Thr	Leu	Arg	His	Gly	Arg	Leu	Cys	Phe	Met	Leu	Arg
	1745					1750					1755			
Val	Gly	Asp	Leu	Arg	Lys	Ser	Met	Ile	Ile	Ser	Ala	Thr	Ile	His
	1760					1765					1770			
Met	Gln	Val	Val	Arg	Lys	Thr	Thr	Ser	Pro	Glu	Gly	Glu	Val	Val
	1775					1780					1785			
Pro	Leu	His	Gln	Val	Asp	Ile	Pro	Met	Glu	Asn	Gly	Val	Gly	Gly
	1790					1795					1800			
Asn	Gly	Ile	Phe	Leu	Val	Ala	Pro	Leu	Ile	Ile	Tyr	His	Val	Ile
	1805					1810					1815			
Asp	Ser	Asn	Ser	Pro	Leu	Tyr	Asp	Leu	Ala	Pro	Ser	Asp	Leu	His
	1820					1825					1830			
His	His	Gln	Asp	Leu	Glu	Ile	Ile	Val	Ile	Leu	Glu	Gly	Val	Val
	1835					1840					1845			
Glu	Thr	Thr	Gly	Ile	Thr	Thr	Gln	Ala	Arg	Thr	Ser	Tyr	Leu	Ala
	1850					1855					1860			
Asp	Glu	Ile	Leu	Trp	Gly	Gln	Arg	Phe	Val	Pro	Ile	Val	Ala	Glu
	1865					1870					1875			
Glu	Asp	Gly	Arg	Tyr	Ser	Val	Asp	Tyr	Ser	Lys	Phe	Gly	Asn	Thr
	1880					1885					1890			
Ile	Lys	Val	Pro	Thr	Pro	Leu	Cys	Thr	Ala	Arg	Gln	Leu	Asp	Glu
	1895					1900					1905			

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Asp Arg Ser Leu Leu Asp Ala Leu Thr Leu Ala Ser Ser Arg Gly
1910 1915 1920

Pro Leu Arg Lys Arg Ser Val Ala Val Ala Lys Ala Lys Pro Lys
1925 1930 1935

Phe Ser Ile Ser Pro Asp Ser Leu Ser
1940 1945

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Ile Asp Gly Val Ile Leu Asn Leu Ser Ala Ile Phe Met Ile Thr Phe
35 40 45

Gly Ile Arg Asp Leu Val Asn Leu Cys Lys Lys Lys His Ser Gly Ile
50 55 60

Lys Tyr Arg Arg Asn Trp Ile Ile Val Ser Arg Met Ala Leu Val Leu
65 70 75 80

Leu Glu Ile Ala Phe Val Ser Leu Ala Ser Leu Asn Ile Ser Lys Glu
85 90 95

Glu Ala Glu Asn Phe Thr Ile Val Ser Gln Tyr Ala Ser Thr Met Leu
100 105 110

Ser Leu Phe Val Ala Leu Ala Leu His Trp Ile Glu Tyr Asp Arg Ser
115 120 125

Val Val Ala Asn Thr Val Leu Leu Phe Tyr Trp Leu Phe Glu Thr Phe
130 135 140

Gly Asn Phe Ala Lys Leu Ile Asn Ile Leu Ile Arg His Thr Tyr Glu
145 150 155 160

Gly Ile Trp Tyr Ser Gly Gln Thr Gly Phe Ile Leu Thr Leu Phe Gln
165 170 175

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Val Ile Thr Cys Ala Ser Ile Leu Leu Leu Glu Ala Leu Pro Lys Lys
180 185 190

Pro Leu Met Pro His Gln His Ile His Gln Thr Leu Thr Arg Arg Lys
195 200 205

Pro Asn Pro Tyr Asp Ser Ala Asn Ile Phe Ser Arg Ile Thr Phe Ser
210 215 220

Trp Met Ser Gly Leu Met Lys Thr Gly Tyr Glu Lys Tyr Leu Val Glu
225 230 235 240

Ala Asp Leu Tyr Lys Leu Pro Arg Asn Phe Ser Ser Glu Glu Leu Ser
245 250 255

Gln Lys Leu Glu Lys Asn Trp Glu Asn Glu Leu Lys Gln Lys Ser Asn
260 265 270

Pro Ser Leu Ser Trp Ala Ile Cys Arg Thr Phe Gly Ser Lys Met Leu
275 280 285

Leu Ala Ala Phe Phe Lys Ala Ile His Asp Val Leu Ala Phe Thr Gln
290 295 300

Pro Gln Leu Leu Arg Ile Leu Ile Lys Phe Val Thr Asp Tyr Asn Ser
305 310 315 320

Glu Arg Gln Asp Asp His Ser Ser Leu Gln Gly Phe Glu Asn Asn His
325 330 335

Pro Gln Lys Leu Pro Ile Val Arg Gly Phe Leu Ile Ala Phe Ala Met
340 345 350

Phe Leu Val Gly Phe Thr Gln Thr Ser Val Leu His Gln Tyr Phe Leu
355 360 365

Asn Val Phe Asn Thr Gly Met Tyr Ile Lys Ser Ala Leu Thr Ala Leu
370 375 380

Ile Tyr Gln Lys Ser Leu Val Leu Ser Asn Glu Ala Ser Gly Leu Ser
385 390 395 400

Ser Thr Gly Asp Ile Val Asn Leu Met Ser Val Asp Val Gln Lys Leu
405 410 415

Gln Asp Leu Thr Gln Trp Leu Asn Leu Ile Trp Ser Gly Pro Phe Gln
420 425 430

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Ile Ile Ile Cys Leu Tyr Ser Leu Tyr Lys Leu Leu Gly Asn Ser Met
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Trp Val Gly Val Ile Ile Leu Val Ile Met Met Pro Leu Asn Ser Phe
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Leu Met Arg Ile Gln Lys Lys Leu Gln Lys Ser Gln Met Lys Tyr Lys
465 470 475 480

Asp Glu Arg Thr Arg Val Ile Ser Glu Ile Leu Asn Asn Ile Lys Ser
485 490 495

Leu Lys Leu Tyr Ala Trp Glu Lys Pro Tyr Arg Glu Lys Leu Glu Glu
500 505 510

Val Arg Asn Asn Lys Glu Leu Lys Asn Leu Thr Lys Leu Gly Cys Tyr
515 520 525

Met Ala Val Thr Ser Phe Gln Phe Asn Ile Val Pro Phe Leu Val Ser
530 535 540

Cys Cys Thr Phe Ala Val Phe Val Tyr Thr Glu Asp Arg Ala Leu Thr
545 550 555 560

Thr Asp Leu Val Phe Pro Ala Leu Thr Leu Phe Asn Leu Leu Ser Phe
565 570 575

Pro Leu Met Ile Ile Pro Met Val Leu Asn Ser Phe Ile Glu Ala Ser
580 585 590

Val Ser Ile Gly Arg Leu Phe Thr Phe Phe Thr Asn Glu Glu Leu Gln
595 600 605

Pro Asp Ser Val Gln Arg Leu Pro Lys Val Lys Asn Ile Gly Asp Val
610 615 620

Ala Ile Asn Ile Gly Asp Asp Ala Thr Phe Leu Trp Gln Arg Lys Pro
625 630 635 640

Glu Tyr Lys Val Ala Leu Lys Asn Ile Asn Phe Gln Ala Lys Lys Gly
645 650 655

Asn Leu Thr Cys Ile Val Gly Lys Val Gly Ser Gly Lys Thr Ala Leu
660 665 670

Leu Ser Cys Met Leu Gly Asp Arg Phe Arg Val Lys Gly Phe Ala Thr
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675

680

685

Val His Gly Ser Val Ala Tyr Val Ser Gln Val Pro Trp Ile Met Asn
 690 695 700
 Gly Thr Val Lys Glu Asn Ile Leu Phe Gly His Arg Tyr Asp Ala Glu
 705 710 715 720
 Phe Tyr Glu Lys Thr Ile Lys Ala Cys Ala Leu Thr Ile Asp Leu Ala
 725 730 735
 Ile Leu Met Asp Gly Asp Lys Thr Leu Val Gly Glu Lys Gly Ile Ser
 740 745 750
 Leu Ser Gly Gly Gln Lys Ala Arg Leu Ser Leu Ala Arg Ala Val Tyr
 755 760 765
 Ala Arg Ala Asp Thr Tyr Leu Leu Asp Asp Pro Leu Ala Ala Val Asp
 770 775 780
 Glu His Val Ala Arg His Leu Ile Glu His Val Leu Gly Pro Asn Gly
 785 790 795 800
 Leu Leu His Thr Lys Thr Lys Val Leu Ala Thr Asn Lys Val Ser Ala
 805 810 815
 Leu Ser Ile Ala Asp Ser Ile Ala Leu Leu Asp Asn Gly Glu Ile Thr
 820 825 830
 Gln Gln Gly Thr Tyr Asp Glu Ile Thr Lys Asp Ala Asp Ser Pro Leu
 835 840 845
 Trp Lys Leu Leu Asn Asn Tyr Gly Lys Lys Asn Asn Gly Lys Ser Asn
 850 855 860
 Glu Phe Gly Asp Ser Ser Glu Ser Ser Val Arg Glu Ser Ser Ile Pro
 865 870 875 880
 Val Glu Gly Glu Leu Glu Gln Leu Gln Lys Leu Asn Asp Leu Asp Phe
 885 890 895
 Gly Asn Ser Asp Ala Ile Ser Leu Arg Arg Ala Ser Asp Ala Thr Leu
 900 905 910
 Gly Ser Ile Asp Phe Gly Asp Asp Glu Asn Ile Ala Lys Arg Glu His
 915 920 925

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Arg Glu Gln Gly Lys Val Lys Trp Asn Ile Tyr Leu Glu Tyr Ala Lys
930 935 940

Ala Cys Asn Pro Lys Ser Val Cys Val Phe Ile Leu Phe Ile Val Ile
945 950 955 960

Ser Met Phe Leu Ser Val Met Gly Asn Val Trp Leu Lys His Trp Ser
965 970 975

Glu Val Asn Ser Arg Tyr Gly Ser Asn Pro Asn Ala Ala Arg Tyr Leu
980 985 990

Ala Ile Tyr Phe Ala Leu Gly Ile Gly Ser Ala Leu Ala Thr Leu Ile
995 1000 1005

Gln Thr Ile Val Leu Trp Val Phe Cys Thr Ile His Ala Ser Lys
1010 1015 1020

Tyr Leu His Asn Leu Met Thr Asn Ser Val Leu Arg Ala Pro Met
1025 1030 1035

Thr Phe Phe Glu Thr Thr Pro Ile Gly Arg Ile Leu Asn Arg Phe
1040 1045 1050

Ser Asn Asp Ile Tyr Lys Val Asp Ala Leu Leu Gly Arg Thr Phe
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Ser Gln Phe Phe Val Asn Ala Val Lys Val Thr Phe Thr Ile Thr
1070 1075 1080

Val Ile Cys Ala Thr Thr Trp Gln Phe Ile Phe Ile Ile Ile Pro
1085 1090 1095

Leu Ser Val Phe Tyr Ile Tyr Tyr Gln Gln Tyr Tyr Leu Arg Thr
1100 1105 1110

Ser Arg Glu Leu Arg Arg Leu Asp Ser Ile Thr Arg Ser Pro Ile
1115 1120 1125

Tyr Ser His Phe Gln Glu Thr Leu Gly Gly Leu Ala Thr Val Arg
1130 1135 1140

Gly Tyr Ser Gln Gln Lys Arg Phe Ser His Ile Asn Gln Cys Arg
1145 1150 1155

Ile Asp Asn Asn Met Ser Ala Phe Tyr Pro Ser Ile Asn Ala Asn
1160 1165 1170

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Arg	Trp	Leu	Ala	Tyr	Arg	Leu	Glu	Leu	Ile	Gly	Ser	Ile	Ile	Ile
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Leu	Gly	Ala	Ala	Thr	Leu	Ser	Val	Phe	Arg	Leu	Lys	Gln	Gly	Thr
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Leu	Thr	Ala	Gly	Met	Val	Gly	Leu	Ser	Leu	Ser	Tyr	Ala	Leu	Gln
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Ile	Thr	Gln	Thr	Leu	Asn	Trp	Ile	Val	Arg	Met	Thr	Val	Glu	Val
1220						1225					1230			
Glu	Thr	Asn	Ile	Val	Ser	Val	Glu	Arg	Ile	Lys	Glu	Tyr	Ala	Asp
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Leu	Lys	Ser	Glu	Ala	Pro	Leu	Ile	Val	Glu	Gly	His	Arg	Pro	Pro
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Lys	Glu	Trp	Pro	Ser	Gln	Gly	Asp	Ile	Lys	Phe	Asn	Asn	Tyr	Ser
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Thr	Arg	Tyr	Arg	Pro	Glu	Leu	Asp	Leu	Val	Leu	Lys	His	Ile	Asn
1280						1285					1290			
Ile	His	Ile	Lys	Pro	Asn	Glu	Lys	Val	Gly	Ile	Val	Gly	Arg	Thr
1295						1300					1305			
Gly	Ala	Gly	Lys	Ser	Ser	Leu	Thr	Leu	Ala	Leu	Phe	Arg	Met	Ile
1310						1315					1320			
Glu	Ala	Ser	Glu	Gly	Asn	Ile	Val	Ile	Asp	Asn	Ile	Ala	Ile	Asn
1325						1330					1335			
Glu	Ile	Gly	Leu	Tyr	Asp	Leu	Arg	His	Lys	Leu	Ser	Ile	Ile	Pro
1340						1345					1350			
Gln	Asp	Ser	Gln	Val	Phe	Glu	Gly	Thr	Val	Arg	Glu	Asn	Ile	Asp
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Pro	Ile	Asn	Gln	Tyr	Thr	Asp	Glu	Ala	Ile	Trp	Arg	Ala	Leu	Glu
1370						1375					1380			
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Pro	Leu	Ala	Ile	Leu	Ile	Leu	Ile	Val	Gln	Asn	Ile
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Met	Ile	Asn	Ala	Ile	Met	Leu	Gly	Cys	Ile	Phe	Met
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Gln	Ala	His	Arg	Arg	Ala	Glu	Thr	Leu	Ile	Phe	Ser
1715						1720					1725
Val	Ile	Thr	Leu	Arg	His	Gly	Arg	Leu	Cys	Phe	Met
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Gly	Asp	Leu	Arg	Lys	Ser	Met	Ile	Ile	Ser	Ala	Thr
1745						1750					1755
Gln	Val	Val	Arg	Lys	Thr	Thr	Ser	Pro	Glu	Gly	Glu
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Leu	His	Gln	Val	Asp	Ile	Pro	Met	Glu	Asn	Gly	Val
1775						1780					1785
Gly	Ile	Phe	Leu	Val	Ala	Pro	Leu	Ile	Ile	Tyr	His
1790						1795					1800
Ser	Asn	Ser	Pro	Leu	Tyr	Asp	Leu	Ala	Pro	Ser	Asp
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His	Gln	Asp	Leu	Glu	Ile	Ile	Val	Ile	Leu	Glu	Gly
1820						1825					1830
Thr	Thr	Gly	Ile	Thr	Thr	Gln	Ala	Arg	Thr	Ser	Tyr
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Glu	Ile	Leu	Trp	Gly	Gln	Arg	Phe	Val	Pro	Ile	Val
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Arg Ser
 1895

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 Pro Asn Pro Tyr Asp Ser Ala Asn Ile Phe Ser Arg Ile Thr Phe Ser
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 245 250 255
 Gln Lys Leu Glu Lys Asn Trp Glu Asn Glu Leu Lys Gln Lys Ser Asn
 260 265 270
 Pro Ser Leu Ser Trp Ala Ile Cys Arg Thr Phe Gly Ser Lys Met Leu
 275 280 285
 Leu Ala Ala Phe Phe Lys Ala Ile His Asp Val Leu Ala Phe Thr Gln
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 Pro Gln Leu Leu Arg Ile Leu Ile Lys Phe Val Thr Asp Tyr Asn Ser
 305 310 315 320
 Glu Arg Gln Asp Asp His Ser Ser Leu Gln Gly Phe Glu Asn Asn His
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 Pro Gln Lys Leu Pro Ile Val Arg Gly Phe Leu Ile Ala Phe Ala Met
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 Phe Leu Val Gly Phe Thr Gln Thr Ser Val Leu His Gln Tyr Phe Leu
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 Asn Val Phe Asn Thr Gly Met Tyr Ile Lys Ser Ala Leu Thr Ala Leu
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 Ser Thr Gly Asp Ile Val Asn Leu Met Ser Val Asp Val Gln Lys Leu
 405 410 415
 Gln Asp Leu Thr Gln Trp Leu Asn Leu Ile Trp Ser Gly Pro Phe Gln
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 Ile Ile Ile Cys Leu Tyr Ser Leu Tyr Lys Leu Leu Gly Asn Ser Met
 435 440 445

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Trp Val Gly Val Ile Ile Leu Val Ile Met Met Pro Leu Asn Ser Phe
 450 455 460
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 465 470 475 480
 Asp Glu Arg Thr Arg Val Ile Ser Glu Ile Leu Asn Asn Ile Lys Ser
 485 490 495
 Leu Lys Leu Tyr Ala Trp Glu Lys Pro Tyr Arg Glu Lys Leu Glu Glu
 500 505 510
 Val Arg Asn Asn Lys Glu Leu Lys Asn Leu Thr Lys Leu Gly Cys Tyr
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 Met Ala Val Thr Ser Phe Gln Phe Asn Ile Val Pro Phe Leu Val Ser
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 Cys Cys Thr Phe Ala Val Phe Val Tyr Thr Glu Asp Arg Ala Leu Thr
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 Pro Leu Met Ile Ile Pro Met Val Leu Asn Ser Phe Ile Glu Ala Ser
 580 585 590
 Val Ser Ile Gly Arg Leu Phe Thr Phe Phe Thr Asn Glu Glu Leu Gln
 595 600 605
 Pro Asp Ser Val Gln Arg Leu Pro Lys Val Lys Asn Ile Gly Asp Val
 610 615 620
 Ala Ile Asn Ile Gly Asp Asp Ala Thr Phe Leu Trp Gln Arg Lys Pro
 625 630 635 640
 Glu Tyr Lys Val Ala Leu Lys Asn Ile Asn Phe Gln Ala Lys Lys Gly
 645 650 655
 Asn Leu Thr Cys Ile Val Gly Lys Val Gly Ser Gly Lys Thr Ala Leu
 660 665 670
 Leu Ser Cys Met Leu Gly Asp Arg Phe Arg Val Lys Gly Phe Ala Thr
 675 680 685
 Val His Gly Ser Val Ala Tyr Val Ser Gln Val Pro Trp Ile Met Asn
 690 695 700
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Gly Thr Val Lys Glu Asn Ile Leu Phe Gly His Arg Tyr Asp Ala Glu
 705 710 715 720
 Phe Tyr Glu Lys Thr Ile Lys Ala Cys Ala Leu Thr Ile Asp Leu Ala
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 Ile Leu Met Asp Gly Asp Lys Thr Leu Val Gly Glu Lys Gly Ile Ser
 740 745 750
 Leu Ser Gly Gly Gln Lys Ala Arg Leu Ser Leu Ala Arg Ala Val Tyr
 755 760 765
 Ala Arg Ala Asp Thr Tyr Leu Leu Asp Asp Pro Leu Ala Ala Val Asp
 770 775 780
 Glu His Val Ala Arg His Leu Ile Glu His Val Leu Gly Pro Asn Gly
 785 790 795 800
 Leu Leu His Thr Lys Thr Lys Val Leu Ala Thr Asn Lys Val Ser Ala
 805 810 815
 Leu Ser Ile Ala Asp Ser Ile Ala Leu Leu Asp Asn Gly Glu Ile Thr
 820 825 830
 Gln Gln Gly Thr Tyr Asp Glu Ile Thr Lys Asp Ala Asp Ser Pro Leu
 835 840 845
 Trp Lys Leu Leu Asn Asn Tyr Gly Lys Lys Asn Asn Gly Lys Ser Asn
 850 855 860
 Glu Phe Gly Asp Ser Ser Glu Ser Ser Val Arg Glu Ser Ser Ile Pro
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 Val Glu Gly Glu Leu Glu Gln Leu Gln Lys Leu Asn Asp Leu Asp Phe
 885 890 895
 Gly Asn Ser Asp Ala Ile Ser Leu Arg Arg Ala Ser Asp Ala Thr Leu
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 Gly Ser Ile Asp Phe Gly Asp Asp Glu Asn Ile Ala Lys Arg Glu His
 915 920 925
 Arg Glu Gln Gly Lys Val Lys Trp Asn Ile Tyr Leu Glu Tyr Ala Lys
 930 935 940
 Ala Cys Asn Pro Lys Ser Val Cys Val Phe Ile Leu Phe Ile Val Ile
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945 950 955 960

Ser Met Phe Leu Ser Val Met Gly Asn Val Trp Leu Lys His Trp Ser
965 970 975

Glu Val Asn Ser Arg Tyr Gly Ser Asn Pro Asn Ala Ala Arg Tyr Leu
980 985 990

Ala Ile Tyr Phe Ala Leu Gly Ile Gly Ser Ala Leu Ala Thr Leu Ile
995 1000 1005

Gln Thr Ile Val Leu Trp Val Phe Cys Thr Ile His Ala Ser Lys
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Tyr Leu His Asn Leu Met Thr Asn Ser Val Leu Arg Ala Pro Met
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Thr Phe Phe Glu Thr Thr Pro Ile Gly Arg Ile Leu Asn Arg Phe
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Ser Asn Asp Ile Tyr Lys Val Asp Ala Leu Leu Gly Arg Thr Phe
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Ser Gln Phe Phe Val Asn Ala Val Lys Val Thr Phe Thr Ile Thr
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Val Ile Cys Ala Thr Thr Trp Gln Phe Ile Phe Ile Ile Ile Pro
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Leu Ser Val Phe Tyr Ile Tyr Tyr Gln Gln Tyr Tyr Leu Arg Thr
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Ser Arg Glu Leu Arg Arg Leu Asp Ser Ile Thr Arg Ser Pro Ile
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Tyr Ser His Phe Gln Glu Thr Leu Gly Gly Leu Ala Thr Val Arg
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Gly Tyr Ser Gln Gln Lys Arg Phe Ser His Ile Asn Gln Cys Arg
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Ile Asp Asn Asn Met Ser Ala Phe Tyr Pro Ser Ile Asn Ala Asn
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Arg Trp Leu Ala Tyr Arg Leu Glu Leu Ile Gly Ser Ile Ile Ile
1175 1180 1185

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Leu	Gly	Ala	Ala	Thr	Leu	Ser	Val	Phe	Arg	Leu	Lys	Gln	Gly	Thr
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Leu	Thr	Ala	Gly	Met	Val	Gly	Leu	Ser	Leu	Ser	Tyr	Ala	Leu	Gln
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Ile	Thr	Gln	Thr	Leu	Asn	Trp	Ile	Val	Arg	Met	Thr	Val	Glu	Val
	1220					1225					1230			
Glu	Thr	Asn	Ile	Val	Ser	Val	Glu	Arg	Ile	Lys	Glu	Tyr	Ala	Asp
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Leu	Lys	Ser	Glu	Ala	Pro	Leu	Ile	Val	Glu	Gly	His	Arg	Pro	Pro
	1250					1255					1260			
Lys	Glu	Trp	Pro	Ser	Gln	Gly	Asp	Ile	Lys	Phe	Asn	Asn	Tyr	Ser
	1265					1270					1275			
Thr	Arg	Tyr	Arg	Pro	Glu	Leu	Asp	Leu	Val	Leu	Lys	His	Ile	Asn
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Gly	Ala	Gly	Lys	Ser	Ser	Leu	Thr	Leu	Ala	Leu	Phe	Arg	Met	Ile
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Glu	Ala	Ser	Glu	Gly	Asn	Ile	Val	Ile	Asp	Asn	Ile	Ala	Ile	Asn
	1325					1330					1335			
Glu	Ile	Gly	Leu	Tyr	Asp	Leu	Arg	His	Lys	Leu	Ser	Ile	Ile	Pro
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Gln	Asp	Ser	Gln	Val	Phe	Glu	Gly	Thr	Val	Arg	Glu	Asn	Ile	Asp
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Pro	Ile	Asn	Gln	Tyr	Thr	Asp	Glu	Ala	Ile	Trp	Arg	Ala	Leu	Glu
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Gln	Arg	Gln	Leu	Leu	Cys	Leu	Ala	Arg	Ala	Met	Leu	Val	Pro	Ser
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Lys Ile Leu Val Leu Asp Glu Ala Thr Ala Ala Val Asp Val Glu
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 Thr Asp Lys Val Val Gln Glu Thr Ile Arg Thr Ala Phe Lys Asp
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 Arg Thr Ile Leu Thr Ile Ala His Arg Leu Asn Thr Ile Met Asp
 1460 1465 1470
 Ser Asp Arg Ile Ile Val Leu Asp Asn Gly Lys Val Ala Glu Phe
 1475 1480 1485
 Asp Ser Pro Gly Gln Leu Leu Ser Asp Asn Lys Ser Leu Phe Tyr
 1490 1495 1500
 Ser Leu Cys Met Glu Ala Gly Leu Val Asn Glu Asn Gly Gly Gly
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 Gly Gly Gly Met Leu Ser Arg Lys Gly Ile Ile Pro Glu Glu Tyr
 1520 1525 1530
 Val Leu Thr Arg Leu Ala Glu Asp Pro Ala Glu Pro Arg Tyr Arg
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 Thr Arg Glu Arg Arg Ala Arg Phe Val Ser Lys Lys Gly Asn Cys
 1550 1555 1560
 Asn Val Ala His Lys Asn Ile Arg Glu Gln Gly Arg Phe Leu Gln
 1565 1570 1575
 Asp Val Phe Thr Thr Leu Val Asp Leu Lys Trp Pro His Thr Leu
 1580 1585 1590
 Leu Ile Phe Thr Met Ser Phe Leu Cys Ser Trp Leu Leu Phe Ala
 1595 1600 1605
 Met Val Trp Trp Leu Ile Ala Phe Ala His Gly Asp Leu Tyr Ala
 1610 1615 1620
 Tyr Met Glu Lys Gly Ile Thr Asp Leu Ala Pro Tyr Pro Tyr Asp
 1625 1630 1635
 Val Pro Asp Tyr Ala Gly Glu Gly Thr Asn Val Pro Cys Val Thr
 1640 1645 1650
 Ser Ile His Ser Phe Ser Ser Ala Phe Leu Phe Ser Ile Glu Val
 1655 1660 1665

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Gln Val Thr Ile Gly Phe Gly Gly Arg Met Val Thr Glu Glu Cys
1670 1675 1680

Pro Leu Ala Ile Leu Ile Leu Ile Val Gln Asn Ile Val Gly Leu
1685 1690 1695

Met Ile Asn Ala Ile Met Leu Gly Cys Ile Phe Met Lys Thr Ala
1700 1705 1710

Gln Ala His Arg Arg Ala Glu Thr Leu Ile Phe Ser Lys His Ala
1715 1720 1725

Val Ile Thr Leu Arg His Gly Arg Leu Cys Phe Met Leu Arg Val
1730 1735 1740

Gly Asp Leu Arg Lys Ser Met Ile Ile Ser Ala Thr Ile His Met
1745 1750 1755

Gln Val Val Arg Lys Thr Thr Ser Pro Glu Gly Glu Val Val Pro
1760 1765 1770

Leu His Gln Val Asp Ile Pro Met Glu Asn Gly Val Gly Gly Asn
1775 1780 1785

Gly Ile Phe Leu Val Ala Pro Leu Ile Ile Tyr His Val Ile Asp
1790 1795 1800

Ser Asn Ser Pro Leu Tyr Asp Leu Ala Pro Ser Asp Leu His His
1805 1810 1815

His Gln Asp Leu Glu Ile Ile Val Ile Leu Glu Gly Val Val Glu
1820 1825 1830

Thr Thr Gly Ile Thr Thr Gln Ala Arg Thr Ser Tyr Leu Ala Asp
1835 1840 1845

Glu Ile Leu Trp Gly Gln Arg Phe Val Pro Ile Val Ala Glu Glu
1850 1855 1860

Asp Gly Arg Tyr Ser Val Asp Tyr Ser Lys Phe Gly Asn Thr Ile
1865 1870 1875

Lys Val Pro Thr Pro Leu Cys Thr Ala Arg Gln Leu Asp Glu Asp
1880 1885 1890

Arg Ser Phe Cys Tyr Glu Asn Glu

1895

1900

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 <213> Homo sapiens

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Thr Val Ser Val Phe Ser Met Phe Arg Tyr Ser Asn Trp Leu Asp Lys
 35 40 45

Leu Tyr Met Val Val Gly Thr Leu Ala Ala Ile Ile His Gly Ala Gly
 50 55 60

Leu Pro Leu Met Met Leu Val Phe Gly Glu Met Thr Asp Ile Phe Ala
 65 70 75 80

Asn Ala Gly Asn Leu Glu Asp Leu Met Ser Asn Ile Thr Asn Arg Ser
 85 90 95

Asp Ile Asn Asp Thr Gly Phe Phe Met Asn Leu Glu Glu Asp Met Thr
 100 105 110

Arg Tyr Ala Tyr Tyr Tyr Ser Gly Ile Gly Ala Gly Val Leu Val Ala
 115 120 125

Ala Tyr Ile Gln Val Ser Phe Trp Cys Leu Ala Ala Gly Arg Gln Ile
 130 135 140

His Lys Ile Arg Lys Gln Phe Phe His Ala Ile Met Arg Gln Glu Ile
 145 150 155 160

Gly Trp Phe Asp Val His Asp Val Gly Glu Leu Asn Thr Arg Leu Thr
 165 170 175

Asp Asp Val Ser Lys Ile Asn Glu Gly Ile Gly Asp Lys Ile Gly Met
 180 185 190

Phe Phe Gln Ser Met Ala Thr Phe Phe Thr Gly Phe Ile Val Gly Phe
 195 200 205

Thr Arg Gly Trp Lys Leu Thr Leu Val Ile Leu Ala Ile Ser Pro Val
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210 215 s263US104.ST25 220

Leu Gly Leu Ser Ala Ala Val Trp Ala Lys Ile Leu Ser Ser Phe Thr
225 230 235 240

Asp Lys Glu Leu Leu Ala Tyr Ala Lys Ala Gly Ala Val Ala Glu Glu
245 250 255

Val Leu Ala Ala Ile Arg Thr Val Ile Ala Phe Gly Gly Gln Lys Lys
260 265 270

Glu Leu Glu Arg Tyr Asn Lys Asn Leu Glu Glu Ala Lys Arg Ile Gly
275 280 285

Ile Lys Lys Ala Ile Thr Ala Asn Ile Ser Ile Gly Ala Ala Phe Leu
290 295 300

Leu Ile Tyr Ala Ser Tyr Ala Leu Ala Phe Trp Tyr Gly Thr Thr Leu
305 310 315 320

Val Leu Ser Gly Glu Tyr Ser Ile Gly Gln Val Leu Thr Val Phe Ser
325 330 335

Val Leu Ile Gly Ala Phe Ser Val Gly Gln Ala Ser Pro Ser Ile Glu
340 345 350

Ala Phe Ala Asn Ala Arg Gly Ala Ala Tyr Glu Ile Phe Lys Ile Ile
355 360 365

Asp Asn Lys Pro Ser Ile Asp Ser Tyr Ser Lys Ser Gly His Lys Pro
370 375 380

Asp Asn Ile Lys Gly Asn Leu Glu Phe Arg Asn Val His Phe Ser Tyr
385 390 395 400

Pro Ser Arg Lys Glu Val Lys Ile Leu Lys Gly Leu Asn Leu Lys Val
405 410 415

Gln Ser Gly Gln Thr Val Ala Leu Val Gly Asn Ser Gly Cys Gly Lys
420 425 430

Ser Thr Thr Val Gln Leu Met Gln Arg Leu Tyr Asp Pro Thr Glu Gly
435 440 445

Met Val Ser Val Asp Gly Gln Asp Ile Arg Thr Ile Asn Val Arg Phe
450 455 460

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Leu Arg Glu Ile Ile Gly Val Val Ser Gln Glu Pro Val Leu Phe Ala
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Thr Thr Ile Ala Glu Asn Ile Arg Tyr Gly Arg Glu Asn Val Thr Met
 485 490 495

Asp Glu Ile Glu Lys Ala Val Lys Glu Ala Asn Ala Tyr Asp Phe Ile
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Met Lys Leu Pro His Lys Phe Asp Thr Leu Val Gly Glu Arg Gly Ala
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Gln Leu Ser Gly Gly Gln Lys Gln Arg Ile Ala Ile Ala Arg Ala Leu
 530 535 540

Val Arg Asn Pro Lys Ile Leu Leu Leu Asp Glu Ala Thr Ser Ala Leu
 545 550 555 560

Asp Thr Glu Ser Glu Ala Val Val Gln Val Ala Leu Asp Lys Ala Arg
 565 570 575

Lys Gly Arg Thr Thr Ile Val Ile Ala His Arg Leu Ser Thr Val Arg
 580 585 590

Asn Ala Asp Val Ile Ala Gly Phe Asp Asp Gly Val Ile Val Glu Lys
 595 600 605

Gly Asn His Asp Glu Leu Met Lys Glu Lys Gly Ile Tyr Phe Lys Leu
 610 615 620

Val Thr Met Gln Thr Ala Gly Asn Glu Val Glu Leu Glu Asn Ala Ala
 625 630 635 640

Asp Glu Ser Lys Ser Glu Ile Asp Ala Leu Glu Met Ser Ser Asn Asp
 645 650 655

Ser Arg Ser Ser Leu Ile Arg Lys Arg Ser Thr Arg Arg Ser Val Arg
 660 665 670

Gly Ser Gln Ala Gln Asp Arg Lys Leu Ser Thr Lys Glu Ala Leu Asp
 675 680 685

Glu Ser Ile Pro Pro Val Ser Phe Trp Arg Ile Met Lys Leu Asn Leu
 690 695 700

Thr Glu Trp Pro Tyr Phe Val Val Gly Val Phe Cys Ala Ile Ile Asn
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Gly Gly Leu Gln Pro Ala Phe Ala Ile Ile Phe Ser Lys Ile Ile Gly
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Val Phe Thr Arg Ile Asp Asp Pro Glu Thr Lys Arg Gln Asn Ser Asn
740 745 750
Leu Phe Ser Leu Leu Phe Leu Ala Leu Gly Ile Ile Ser Phe Ile Thr
755 760 765
Phe Phe Leu Gln Gly Phe Thr Phe Gly Lys Ala Gly Glu Ile Leu Thr
770 775 780
Lys Arg Leu Arg Tyr Met Val Phe Arg Ser Met Leu Arg Gln Asp Val
785 790 795 800
Ser Trp Phe Asp Asp Pro Lys Asn Thr Thr Gly Ala Leu Thr Thr Arg
805 810 815
Leu Ala Asn Asp Ala Ala Gln Val Lys Gly Ala Ile Gly Ser Arg Leu
820 825 830
Ala Val Ile Thr Gln Asn Ile Ala Asn Leu Gly Thr Gly Ile Ile Ile
835 840 845
Ser Phe Ile Tyr Gly Trp Gln Leu Thr Leu Leu Leu Leu Ala Ile Val
850 855 860
Pro Ile Ile Ala Ile Ala Gly Val Val Glu Met Lys Met Leu Ser Gly
865 870 875 880
Gln Ala Leu Lys Asp Lys Lys Glu Leu Glu Gly Ala Gly Lys Ile Ala
885 890 895
Thr Glu Ala Ile Glu Asn Phe Arg Thr Val Val Ser Leu Thr Gln Glu
900 905 910
Gln Lys Phe Glu His Met Tyr Ala Gln Ser Leu Gln Val Pro Tyr Arg
915 920 925
Asn Ser Leu Arg Lys Ala His Ile Phe Gly Ile Thr Phe Ser Phe Thr
930 935 940
Gln Ala Met Met Tyr Phe Ser Tyr Ala Gly Cys Phe Arg Phe Gly Ala
945 950 955 960
Tyr Leu Val Ala His Lys Leu Met Ser Phe Glu Asp Val Leu Leu Val
965 970 975

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Phe Ser Ala Val Val Phe Gly Ala Met Ala Val Gly Gln Val Ser Ser
980 985 990

Phe Ala Pro Asp Tyr Ala Lys Ala Lys Ile Ser Ala Ala His Ile Ile
995 1000 1005

Met Ile Ile Glu Lys Thr Pro Leu Ile Asp Ser Tyr Ser Thr Glu
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Gly Leu Met Pro Asn Thr Leu Glu Gly Asn Val Thr Phe Gly Glu
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Val Val Phe Asn Tyr Pro Thr Arg Pro Asp Ile Pro Val Leu Gln
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Gly Leu Ser Leu Glu Val Lys Lys Gly Gln Thr Leu Ala Leu Val
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Gly Ser Ser Gly Cys Gly Lys Ser Thr Val Val Gln Leu Leu Glu
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Arg Phe Tyr Asp Pro Leu Ala Gly Lys Val Leu Leu Asp Gly Lys
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Glu Ile Lys Arg Leu Asn Val Gln Trp Leu Arg Ala His Leu Gly
1100 1105 1110

Ile Val Ser Gln Glu Pro Ile Leu Phe Asp Cys Ser Ile Ala Glu
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Asn Ile Ala Tyr Gly Asp Asn Ser Arg Val Val Ser Gln Glu Glu
1130 1135 1140

Ile Val Arg Ala Ala Lys Glu Ala Asn Ile His Ala Phe Ile Glu
1145 1150 1155

Ser Leu Pro Asn Lys Tyr Ser Thr Lys Val Gly Asp Lys Gly Thr
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Gln Leu Ser Gly Gly Gln Lys Gln Arg Ile Ala Ile Ala Arg Ala
1175 1180 1185

Leu Val Arg Gln Pro His Ile Leu Leu Leu Asp Glu Ala Thr Ser
1190 1195 1200

Ala Leu Asp Thr Glu Ser Glu Lys Val Val Gln Glu Ala Leu Asp
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		Thr	Cys	Ile
		1225		Val
				Ile
				Ala
				1230
				His
				Arg
				Leu
Ser	Thr	Ile	Gln	Asn
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				Leu
				Ser
				Arg
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				Gly
				Ile
				Ile
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				Arg
				Leu
				Ala
				Glu
				Asp
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				Pro
				Ala
				Glu
Pro	Arg	Tyr	Arg	Thr
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				Ser
				Lys
Lys	Gly	Asn	Cys	Asn
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				Asn
				Ile
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				Gln
				Gly
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				Thr
				Leu
				Val
				Asp
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				Leu
				Lys
				Trp
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				1360
				Thr
				Met
				Ser
				Phe
				Leu
				1365
				Cys
				Ser
				Trp
Leu	Leu	Phe	Ala	Met
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				Trp
				1375
				Trp
				Leu
				Ile
				Ala
				Phe
				1380
				Ala
				His
				Gly
Asp	Leu	Tyr	Ala	Tyr
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				Glu
				1390
				Lys
				Gly
				Ile
				Thr
				Asp
				1395
				Leu
				Ala
				Pro
Tyr	Pro	Tyr	Asp	Val
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				Asp
				1405
				Tyr
				Ala
				Gly
				Glu
				Gly
				1410
				Thr
				Asn
				Val
Pro	Cys	Val	Thr	Ser
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				His
				1420
				Ser
				Phe
				Ser
				Ser
				Ala
				1425
				Phe
				Leu
				Phe
Ser	Ile	Glu	Val	Gln
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				Thr
				1435
				Ile
				Gly
				Phe
				Gly
				Gly
				1440
				Arg
				Met
				Val

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Thr	Glu	Glu	Cys	Pro	Leu	Ala	Ile	Leu	Ile	Leu	Ile	Val	Gln	Asn
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Ser	Lys	His	Ala	Val	Ile	Thr	Leu	Arg	His	Gly	Arg	Leu	Cys	Phe
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Met	Leu	Arg	Val	Gly	Asp	Leu	Arg	Lys	Ser	Met	Ile	Ile	Ser	Ala
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His	Val	Ile	Asp	Ser	Asn	Ser	Pro	Leu	Tyr	Asp	Leu	Ala	Pro	Ser
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Asp	Leu	His	His	His	Gln	Asp	Leu	Glu	Ile	Ile	Val	Ile	Leu	Glu
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Gly	Val	Val	Glu	Thr	Thr	Gly	Ile	Thr	Thr	Gln	Ala	Arg	Thr	Ser
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Tyr	Leu	Ala	Asp	Glu	Ile	Leu	Trp	Gly	Gln	Arg	Phe	Val	Pro	Ile
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Val	Ala	Glu	Glu	Asp	Gly	Arg	Tyr	Ser	Val	Asp	Tyr	Ser	Lys	Phe
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Gly	Asn	Thr	Ile	Lys	Val	Pro	Thr	Pro	Leu	Cys	Thr	Ala	Arg	Gln
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Ser	Arg	Gly	Pro	Leu	Arg	Lys	Arg	Ser	Val	Ala	Val	Ala	Lys	Ala
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Lys Pro Glu Phe Ser Ile Ser Pro Asp Ser Leu Ser
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Pro His Val Phe Leu Leu Phe Ile Thr Phe Pro Ile Leu Phe Ile Gly
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Trp Gly Ser Gln Ser Ser Lys Val Gln Ile His His Asn Thr Trp Leu
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His Phe Pro Gly His Asn Leu Arg Trp Ile Leu Thr Phe Ala Leu Leu
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Phe Val His Val Cys Glu Ile Ala Glu Gly Ile Val Ser Asp Ser Gln
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Arg Ala Ser Arg His Leu His Leu Phe Met Pro Ala Val Met Gly Phe
100 105 110

Val Ala Thr Thr Thr Ser Ile Val Tyr Tyr His Asn Ile Glu Thr Ser
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Asn Phe Pro Lys Leu Leu Leu Ala Leu Phe Leu Tyr Trp Val Met Ala
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Phe Ile Thr Lys Thr Ile Lys Leu Val Lys Tyr Trp Gln Leu Gly Trp
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Gly Met Ser Asp Leu Arg Phe Cys Ile Thr Gly Val Met Val Ile Leu
165 170 175

Asn Gly Leu Leu Met Ala Val Glu Ile Asn Val Ile Arg Val Arg Arg
180 185 190

Tyr Val Phe Phe Met Asn Pro Gln Lys Val Lys Pro Pro Glu Asp Leu
195 200 205

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Gln Asp Leu Gly Val Arg Phe Leu Gln Pro Phe Val Asn Leu Leu Ser
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Lys Ala Thr Tyr Trp Trp Met Asn Thr Leu Ile Ile Ser Ala His Arg
 225 230 235 240

Lys Pro Ile Asp Leu Lys Ala Ile Gly Lys Leu Pro Ile Ala Met Arg
 245 250 255

Ala Val Thr Asn Tyr Val Cys Leu Lys Glu Ala Tyr Glu Glu Gln Lys
 260 265 270

Lys Lys Ala Ala Asp His Pro Asn Arg Thr Pro Ser Ile Trp Leu Ala
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Met Tyr Arg Ala Phe Gly Arg Pro Ile Leu Leu Ser Ser Thr Phe Arg
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Tyr Leu Ala Asp Leu Leu Gly Phe Ala Gly Pro Leu Cys Ile Ser Gly
 305 310 315 320

Ile Val Gln Arg Val Asn Glu Pro Lys Asn Asn Thr Thr Arg Phe Ser
 325 330 335

Glu Thr Leu Ser Ser Lys Glu Phe Leu Glu Asn Ala His Val Leu Ala
 340 345 350

Val Leu Leu Phe Leu Ala Leu Ile Leu Gln Arg Thr Phe Leu Gln Ala
 355 360 365

Ser Tyr Tyr Val Thr Ile Glu Thr Gly Ile Asn Leu Arg Gly Ala Leu
 370 375 380

Leu Ala Met Ile Tyr Asn Lys Ile Leu Arg Leu Ser Thr Ser Asn Leu
 385 390 395 400

Ser Met Gly Glu Met Thr Leu Gly Gln Ile Asn Asn Leu Val Ala Ile
 405 410 415

Glu Thr Asn Gln Leu Met Trp Phe Leu Phe Leu Cys Pro Asn Leu Trp
 420 425 430

Ala Met Pro Val Gln Ile Ile Met Gly Val Ile Leu Leu Tyr Asn Leu
 435 440 445

Leu Gly Ser Ser Ala Leu Val Gly Ala Ala Val Ile Val Leu Leu Ala
 450 455 460

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Pro Ile Gln Tyr Phe Ile Ala Thr Lys Leu Ala Glu Ala Gln Lys Ser
465 470 475 480

Thr Leu Asp Tyr Ser Thr Glu Arg Leu Lys Lys Thr Asn Glu Ile Leu
485 490 495

Lys Gly Ile Lys Leu Leu Lys Leu Tyr Ala Trp Glu His Ile Phe Cys
500 505 510

Lys Ser Val Glu Glu Thr Arg Met Lys Glu Leu Ser Ser Leu Lys Thr
515 520 525

Phe Ala Leu Tyr Thr Ser Leu Ser Ile Phe Met Asn Ala Ala Ile Pro
530 535 540

Ile Ala Ala Val Leu Ala Thr Phe Val Thr His Ala Tyr Ala Ser Gly
545 550 555 560

Asn Asn Leu Lys Pro Ala Glu Ala Phe Ala Ser Leu Ser Leu Phe His
565 570 575

Ile Leu Val Thr Pro Leu Phe Leu Leu Ser Thr Val Val Arg Phe Ala
580 585 590

Val Lys Ala Ile Ile Ser Val Gln Lys Leu Asn Glu Phe Leu Leu Ser
595 600 605

Asp Glu Ile Gly Glu Asp Ser Trp Arg Thr Gly Glu Gly Thr Leu Pro
610 615 620

Phe Glu Ser Cys Lys Lys His Thr Gly Val Gln Ser Lys Pro Ile Asn
625 630 635 640

Arg Lys Gln Pro Gly Arg Tyr His Leu Asp Asn Tyr Glu Gln Ala Arg
645 650 655

Arg Leu Arg Pro Ala Glu Thr Glu Asp Val Ala Ile Lys Val Thr Asn
660 665 670

Gly Tyr Phe Ser Trp Gly Ser Gly Leu Ala Thr Leu Ser Asn Ile Asp
675 680 685

Ile Arg Ile Pro Thr Gly Gln Leu Thr Met Ile Val Gly Gln Val Gly
690 695 700

Cys Gly Lys Ser Ser Leu Leu Leu Ala Ile Leu Gly Glu Met Gln Thr

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Asp Asn Met Ser Thr Val Met Arg Leu Arg Thr Lys Met Pro Trp Lys
 965 970 975

Thr Cys Trp Trp Tyr Leu Thr Ser Gly Gly Phe Phe Leu Leu Phe Leu
 980 985 990

Met Ile Phe Ser Lys Leu Leu Lys His Ser Val Ile Val Ala Ile Asp
 995 1000 1005

Tyr Trp Leu Ala Thr Trp Thr Ser Glu Tyr Ser Ile Asn Asp Pro
 1010 1015 1020

Gly Lys Ala Asp Gln Thr Phe Tyr Val Ala Gly Phe Ser Ile Leu
 1025 1030 1035

Cys Gly Ala Gly Ile Phe Leu Cys Leu Val Thr Ser Leu Thr Val
 1040 1045 1050

Glu Trp Met Gly Leu Thr Ala Ala Lys Asn Leu His His Asn Leu
 1055 1060 1065

Leu Asn Lys Ile Ile Leu Gly Pro Ile Arg Phe Phe Asp Thr Thr
 1070 1075 1080

Pro Leu Gly Leu Ile Leu Asn Arg Phe Ser Ala Asp Thr Asn Ile
 1085 1090 1095

Ile Asp Gln His Ile Pro Pro Thr Leu Glu Ser Leu Thr Arg Ser
 1100 1105 1110

Thr Leu Leu Cys Leu Ser Ala Ile Gly Met Ile Ser Tyr Ala Thr
 1115 1120 1125

Pro Val Phe Leu Ile Ala Leu Ala Pro Leu Gly Val Ala Phe Tyr
 1130 1135 1140

Phe Ile Gln Lys Tyr Phe Arg Val Ala Ser Lys Asp Leu Gln Glu
 1145 1150 1155

Leu Asp Asp Ser Thr Gln Leu Pro Leu Leu Cys His Phe Ser Glu
 1160 1165 1170

Thr Ala Glu Gly Leu Thr Thr Ile Arg Ala Phe Arg His Glu Thr
 1175 1180 1185

Arg Phe Lys Gln Arg Met Leu Glu Leu Thr Asp Thr Asn Asn Ile
 1190 1195 1200

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Ala	Tyr	Leu	Phe	Leu	Ser	Ala	Ala	Asn	Arg	Trp	Leu	Glu	Val	Arg
	1205					1210					1215			
Thr	Asp	Tyr	Leu	Gly	Ala	Cys	Ile	Val	Leu	Thr	Ala	Ser	Ile	Ala
	1220					1225					1230			
Ser	Ile	Ser	Gly	Ser	Ser	Asn	Ser	Gly	Leu	Val	Gly	Leu	Gly	Leu
	1235					1240					1245			
Leu	Tyr	Ala	Leu	Thr	Ile	Thr	Asn	Tyr	Leu	Asn	Trp	Val	Val	Arg
	1250					1255					1260			
Asn	Leu	Ala	Asp	Leu	Glu	Val	Gln	Met	Gly	Ala	Val	Lys	Lys	Val
	1265					1270					1275			
Asn	Ser	Phe	Leu	Thr	Met	Glu	Ser	Glu	Asn	Tyr	Glu	Gly	Thr	Met
	1280					1285					1290			
Asp	Pro	Ser	Gln	Val	Pro	Glu	His	Trp	Pro	Gln	Glu	Gly	Glu	Ile
	1295					1300					1305			
Lys	Ile	His	Asp	Leu	Cys	Val	Arg	Tyr	Glu	Asn	Asn	Leu	Lys	Pro
	1310					1315					1320			
Val	Leu	Lys	His	Val	Lys	Ala	Tyr	Ile	Lys	Pro	Gly	Gln	Lys	Val
	1325					1330					1335			
Gly	Ile	Cys	Gly	Arg	Thr	Gly	Ser	Gly	Lys	Ser	Ser	Leu	Ser	Leu
	1340					1345					1350			
Ala	Phe	Phe	Arg	Met	Val	Asp	Ile	Phe	Asp	Gly	Lys	Ile	Val	Ile
	1355					1360					1365			
Asp	Gly	Ile	Asp	Ile	Ser	Lys	Leu	Pro	Leu	His	Thr	Leu	Arg	Ser
	1370					1375					1380			
Arg	Leu	Ser	Ile	Ile	Leu	Gln	Asp	Pro	Ile	Leu	Phe	Ser	Gly	Ser
	1385					1390					1395			
Ile	Arg	Phe	Asn	Leu	Asp	Pro	Glu	Cys	Lys	Cys	Thr	Asp	Asp	Arg
	1400					1405					1410			
Leu	Trp	Glu	Ala	Leu	Glu	Ile	Ala	Gln	Leu	Lys	Asn	Met	Val	Lys
	1415					1420					1425			
Ser	Leu	Pro	Gly	Gly	Leu	Asp	Ala	Thr	Val	Thr	Glu	Gly	Gly	Glu
	1430					1435					1440			

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Asn	Phe	Ser	Val	Gly	Gln	Arg	Gln	Leu	Phe	Cys	Leu	Ala	Arg	Ala
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Phe	Val	Arg	Lys	Ser	Ser	Ile	Leu	Ile	Met	Asp	Glu	Ala	Thr	Ala
1460						1465					1470			
Ser	Ile	Asp	Met	Ala	Thr	Glu	Asn	Ile	Leu	Gln	Lys	Val	Val	Met
1475						1480					1485			
Thr	Ala	Phe	Ala	Asp	Arg	Thr	Val	Val	Thr	Ile	Ala	His	Arg	Val
1490						1495					1500			
Ser	Ser	Ile	Met	Asp	Ala	Gly	Leu	Val	Leu	Val	Phe	Ser	Glu	Gly
1505						1510					1515			
Ile	Leu	Val	Glu	Cys	Asp	Thr	Gly	Pro	Asn	Leu	Leu	Gln	His	Lys
1520						1525					1530			
Asn	Gly	Leu	Phe	Ser	Thr	Leu	Val	Met	Thr	Asn	Lys	Gly	Gly	Gly
1535						1540					1545			
Gly	Gly	Gly	Met	Leu	Ser	Arg	Lys	Gly	Ile	Ile	Pro	Glu	Glu	Tyr
1550						1555					1560			
Val	Leu	Thr	Arg	Leu	Ala	Glu	Asp	Pro	Ala	Glu	Pro	Arg	Tyr	Arg
1565						1570					1575			
Thr	Arg	Glu	Arg	Arg	Ala	Arg	Phe	Val	Ser	Lys	Lys	Gly	Asn	Cys
1580						1585					1590			
Asn	Val	Ala	His	Lys	Asn	Ile	Arg	Glu	Gln	Gly	Arg	Phe	Leu	Gln
1595						1600					1605			
Asp	Val	Phe	Thr	Thr	Leu	Val	Asp	Leu	Lys	Trp	Pro	His	Thr	Leu
1610						1615					1620			
Leu	Ile	Phe	Thr	Met	Ser	Phe	Leu	Cys	Ser	Trp	Leu	Leu	Phe	Ala
1625						1630					1635			
Met	Val	Trp	Trp	Leu	Ile	Ala	Phe	Ala	His	Gly	Asp	Leu	Ala	Pro
1640						1645					1650			
Gly	Glu	Gly	Thr	Asn	Val	Pro	Cys	Val	Thr	Ser	Ile	His	Ser	Phe
1655						1660					1665			
Ser	Ser	Ala	Phe	Leu	Phe	Ser	Ile	Glu	Val	Gln	Val	Thr	Ile	Gly

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1670						1675								1680
Phe	Gly	Gly	Arg	Met	Val	Thr	Glu	Glu	Cys	Pro	Leu	Ala	Ile	Leu
1685						1690					1695			
Ile	Leu	Ile	Val	Gln	Asn	Ile	Val	Gly	Leu	Met	Ile	Asn	Ala	Ile
1700						1705					1710			
Met	Leu	Gly	Cys	Ile	Phe	Met	Lys	Thr	Ala	Gln	Ala	His	Arg	Arg
1715						1720					1725			
Ala	Glu	Thr	Leu	Ile	Phe	Ser	Lys	His	Ala	Val	Ile	Thr	Leu	Arg
1730						1735					1740			
His	Gly	Arg	Leu	Cys	Phe	Met	Leu	Arg	Val	Gly	Asp	Leu	Arg	Lys
1745						1750					1755			
Ser	Met	Ile	Ile	Ser	Ala	Thr	Ile	His	Met	Gln	Val	Val	Arg	Lys
1760						1765					1770			
Thr	Thr	Ser	Pro	Glu	Gly	Glu	Val	Val	Pro	Leu	His	Gln	Val	Asp
1775						1780					1785			
Ile	Pro	Met	Glu	Asn	Gly	Val	Gly	Gly	Asn	Gly	Ile	Phe	Leu	Val
1790						1795					1800			
Ala	Pro	Leu	Ile	Ile	Tyr	His	Val	Ile	Asp	Ser	Asn	Ser	Pro	Leu
1805						1810					1815			
Tyr	Asp	Leu	Ala	Pro	Ser	Asp	Leu	His	His	His	Gln	Asp	Leu	Glu
1820						1825					1830			
Ile	Ile	Val	Ile	Leu	Glu	Gly	Val	Val	Glu	Thr	Thr	Gly	Ile	Thr
1835						1840					1845			
Thr	Gln	Ala	Arg	Thr	Ser	Tyr	Leu	Ala	Asp	Glu	Ile	Leu	Trp	Gly
1850						1855					1860			
Gln	Arg	Phe	Val	Pro	Ile	Val	Ala	Glu	Glu	Asp	Gly	Arg	Tyr	Ser
1865						1870					1875			
Val	Asp	Tyr	Ser	Lys	Phe	Gly	Asn	Thr	Ile	Lys	Val	Pro	Thr	Pro
1880						1885					1890			
Leu	Cys	Thr	Ala	Arg	Gln	Leu	Asp	Glu	Asp	Arg	Ser	Leu	Leu	Asp
1895						1900					1905			

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Ala Leu Thr Leu Ala Ser Ser Arg Gly Pro Leu Arg Lys Arg Ser
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Val Ala Val Ala Lys Ala Lys Pro Lys Phe Ser Ile Ser Pro Asp
 1925 1930 1935

Ser Leu Ser
 1940

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